Sustainable cruise tourism in the North Sea Region

A BEST PRACTICE GUIDE

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Sustainable cruise tourism in the North Sea Region

A best practice guide

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www.cruisegateway.eu

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Introduction

The cruise industry depends on high levels of natural environment quality and sociocultural heritage at destinations. However, if not properly managed, tourism has the potential to degrade these same assets. There is a growing awareness that the positive impacts of tourism can only be sustained if the potential negative effects of tourism can be minimised. The principle of 'sustainable tourism' is gaining importance.

This document provides a guide to best practice strategies which could be implemented in order to increase the sustainability of cruise tourism in the North Sea Region (NSR). It includes consideration of the impacts associated with cruise ships, cruise ports and tourism-related activities at destinations.

It should be noted that these are examples of possible approaches; the most appropriate solutions in a specific context will depend on the most significant current impacts, the potential cost-benefit, and the people involved. In addition, strategies cannot be implemented in isolation - most will affect multiple issues, and are connected to other possible strategies. Each option should be explored, its relative merits considered, and appropriate means of implementation established.

A key conclusion of the guide is that increasing the sustainability of the cruise industry requires collaboration. By working together through long term collaborative partnerships, it is possible to evolve approaches which achieve benefits for all involved.

Reading guidance

The guide starts with an introduction to the meaning of the term 'sustainable tourism' and the areas which must be addressed in order to increase the sustainability of the cruise tourism industry.

The areas associated with sustainable cruise tourism are then explored in more detail, with consideration of main common issues and impacts associated with the sector. This section also includes an overview of the key issues for cruise ships, and the way in which some cruise lines are addressing them; although the focus of the guide is on ports and destinations it is essential to take these impacts into account in developing practical sustainable strategies.

The main section of the guide outlines the range of strategies which are available to increase the sustainability of the cruise tourism industry. These are summarized separately for cruise ports, terminal buildings, and destinations, with strategies broken down against each of the main sustainability themes within each section. Cross references are provided to indicate relationships with other strategies.

The guide concludes with a summary of the key recommendations for both cruise ports and destinations. Recommendations are also given for the on-going collaboration required in order to continue to evolve and implement best practice sustainable solutions.

What is sustainable cruise tourism?

> 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs' [1]

Fundamentally, sustainability is the capacity to endure. Sustainable development refers to society's ability to evolve in a way that meets the needs of everyone in the long term. In order to achieve sustainable development, it is essential to consider the needs and values of the wide range of people affected by decisions. This includes ensuring protection of the natural systems upon which society depends, minimising destruction of habitats and depletion of resources, and avoiding pollution of the environment. It also requires that we take account of the economic implications of decisions.

> 'Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems.' [2]

The tourism industry directly generates more than 5% of GDP in the EU, and contributes much more if indirect impacts are taken into account. Cruise tourism is one of the fastest growing economic sectors. It has the potential to deliver significant and wide ranging benefits, most often cited as the impacts on employment and wealth creation. However, it also has many potential negative impacts, especially in terms of the environment. In reality, the economic, sociocultural, and environmental impacts of cruise tourism can be both positive and negative. Sustainable tourism requires that we work towards ensuring that the benefits are maximised and the costs minimised for all involved. When aiming to become more sustainable, cruises port and destinations must address all three aspects of sustainability and the way in which they affect each other.

1 Our Common Future, Report of the World Commission on Environment and Development, World Commission on Environment and Development, 1987. Annex to General Assembly document A/42/427

2 Agenda 21 for the Travel & Tourism Sector, World Travel & Tourism Council / World Tourism Organisation / Earth Council, 1996


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A framework for sustainable cruise tourism

This picture summarises which areas must be addressed in order to improve the sustainability of cruise tourism in the North Sea Region. It includes the key areas of economic, social and environmental impacts which are the cornerstones of any approach to sustainability. It also includes a range of 'technical' issues, which are focussed on the process of delivering a high quality sustainable tourism product.

The framework is based on a review of over 70 documents relating to key aspects of sustainable cruise tourism, including:

- the outcomes of best practice tours in the NSR;
- case study examples demonstrating best practice strategies which have been implemented in the NSR;
- cruise line sustainability reports;
- publications on specific impacts of the cruise industry;
- criteria from common certification schemes for tourist destinations and attractions;
- publications relating to the sustainability of tourism industry in general;
- publications relating to good practice in port's management of sustainability issues; and
- sustainability reports published by various ports worldwide.

The contents of this guide are based on the results of this review. While the specific impacts and strategies for addressing them may vary, each area in this framework indicates a common theme which is relevant to cruise ships, ports, and destinations. Information throughout the guide is divided under headings relating to each of these themes.

Issues and impacts

This section provides a summary of how each theme in the sustainability framework relates to the key issues and impacts which should be addressed by the cruise industry.

Financial Impacts

Manage lifecycle economic impacts in order to minimise costs and maximise benefits

For any business to be sustainable in the long term it must remain economically viable. Cruise lines must ensure they operate efficiently and cost effectively in order to remain competitive. Ports also need to be competitive, attracting cruise lines while ensuring that appropriate incentives are in place for cruise ships to minimise potential negative impacts on the local environment. Cruise tourism has the potential to contribute substantially to the economies of destination regions. However, the extent of positive economic impacts varies significantly between destinations. Tourist attractions and surrounding regions can significantly impact the extent of financial benefits and the profitability of the tourism offering.

Employment

Attract, develop, and retain a diverse, skilled, and committed workforce, while maximising local employment and business opportunities

Cruise tourism is a significant generator of employment. Cruise ships, ports, and destinations employ large numbers of staff in a very wide range of roles. Employee health, safety, rights, and benefits must be maintained, while ensuring that they have sufficient training to deliver a high quality service whilst managing sustainability impacts effectively. Beyond their roles as direct employers, the various key players involved in the industry also have wide ranging indirect impacts on local employment and the development of small businesses in the areas in which they operate.

Photo: Jorma Valkonen

Reputation

Develop and promote a sustainable brand, maximising customer satisfaction while ensuring effective communication with all stakeholders

Customer satisfaction and a positive image are essential for the long term viability of both cruise lines and the destinations they visit. Developing a sustainable brand can help to manage reputational risks, enhance relationships with key stakeholders, and meet the requirements of a growing segment of consumers that place value on sustainability. Responsible marketing activities and on-going dialogue are essential in developing an understanding of requirements and priorities, and in ensuring awareness of sustainability issues and what is being done to address them.

Management

Develop and implement effective management strategies and systems to ensure sustainable operations, achieving the best outcome for the purpose and context

Addressing sustainability issues effectively requires careful planning and ongoing management. Plans, policies and strategies must be developed which take into account a broad range of sustainability issues as well as detailed specific actions. Impacts and risks must be monitored on an ongoing basis, and management approaches reviewed and updated to ensure continuous improvement.

Supply Chain

Build and maintain positive relationships throughout the supply chain to achieve whole life value and deliver best practice, sustainable solutions

The cruise industry involves a complex supply chain, with numerous actors and diverse relationships between different groups. These include port services, tour operators, attractions, waste companies, transport providers, and suppliers of food, beverages, and other consumables. Those responsible for procurement have the potential to use purchasing policies and performance requirements to drive sustainability improvements throughout the value chain. By developing integrated supply chains with effective communication, cooperative relationships can be developed which deliver win-win solutions for all involved.

Quality

Ensure high quality standards in the development and delivery of facilities and services, implementing innovative solutions to achieve sustainable results.

A key factor in achieving customer satisfaction is the quality of service provided. Cruise lines, ports, and destination attractions must all ensure that quality issues are managed effectively, and that facilities provided and services delivered meet or exceed customer expectations. As requirements evolve, innovative approaches and technologies must be sought out to achieve continuous improvement and drive sustainable change.

Travel

Enable more sustainable transport choices, ensuring efficient mobility while minimising the potential negative impacts of transportation

Tourism is travel, but transport issues are even more important for cruise tourism than for other sectors of the industry. Almost every aspect of a cruise holiday involves travel. For cruise lines, it is essential to ensure that itineraries are effective and attractive, that berthing is efficient, and that congestion on arrival at destinations is minimised. Ports and destinations need to ensure that good quality transport infrastructure exists to support cruise tourist excursions, while minimising the potential negative impacts of transport, particularly in terms of traffic, noise, and air pollution. Increasing the use of environmentally friendly vehicles and promoting more sustainable transport options are effective ways of achieving this.

Wellbeing

Promote and ensure the health, safety and security of everyone involved

Cruise tourists consider health, safety, and security issues to be very important aspects of an attractive, enjoyable cruise. Cruise lines also take these concerns very seriously, and pay a considerable amount of attention to ensuring the health, safety, and wellbeing of both guests and employees on-board ship. Similarly, the level of shoreside crime and guests' perception of safety has a considerable impact on the attractiveness of destinations. Ports and destinations also need to take these issues into account, as well as ensuring the health and safety of their own employees, and minimising potential negative impacts on the health of surrounding communities.

Collaboration

Engage in collaborative partnerships and inclusive dialogue with all stakeholders, building productive relationships, sharing best practice, and driving sustainable change

An extremely wide range of actors is involved in delivering any tourism product. Collaboration is essential for any sustainable tourism initiative to be successful. Each of the key players in the industry needs to develop relationships with all of their main stakeholders. The level of engagement may vary, from consultation exercises or involvement in decision making to long term partnerships. Collaboration may be developed through port associations, destination partnerships, community involvement initiatives, or knowledge sharing networks. It is also important to increase the level of collaboration between cruise lines and ports throughout the region, in order to develop a common understanding of requirements and develop standardised technologies, processes, and sustainable solutions.

Culture

Protect and, where appropriate, enhance features of archaeological interest, the historic environment and cultural heritage

The existence of areas of historical and/ or cultural significance is a key factor in the attractiveness of tourist destinations. It is essential for ports, and especially destinations, to prevent damage to cultural heritage sites, to ensure awareness of cultural issues and the historical value of attractions, and to promote features that enhance the distinctiveness of the destination. Equally, it is in the interests of cruise lines to ensure that these attractions are preserved, enhancing the experiences of future visitors.

Photo: Jorma Valkonen

Land Use and Soils

Manage, protect, and enhance land and soil resources

Although cruise ships spend much of their time at sea, the cruise industry has various potential impacts on land use and soil quality. These can range from contamination of soils due to water pollution or spills in port, to the impacts on land use of tourism development, and associated visual impacts on the landscape. Appropriate land use planning, careful design practices, and effective environmental management of operations can help to minimise these impacts while ensuring the continuing attractiveness of destinations.

Resources and Waste

Ensure the prudent, sustainable management and use of material resources and minimise waste through the waste hierarchy

Cruise ships generate large volumes of waste every day, and this waste must be managed effectively. Ports must ensure adequate facilities are available to deal with these wastes in a sustainable manner. Both ports and destinations also need to manage their own consumption of materials and production of wastes. Minimising the use of materials, while ensuring that materials with low environmental impacts are used, is the first step in achieving sustainable resource use. Following the waste hierarchy – avoiding, reusing, and recycling waste before resorting to energy recovery or landfill – provides a means of minimising negative impacts. Effective management of material consumption and wastes can also provide substantial benefits in terms of cost savings.

Biodiversity

Protect habitats, species, and the integrity of ecosystems and promote opportunities to enhance and conserve biodiversity

Destinations offering unique natural habitats and unspoilt environments are attractive for many tourists, but a high level of tourism in an area can have severely negative impacts on these same environments if not managed effectively. Conversely, the income generated from tourism activities in these areas also has the potential to contribute to their conservation, restoration and enhancement. Cruise lines and destinations need to work together in ensuring that natural heritage features are protected, and impacts on local biodiversity are minimised.

Water

Enable the efficient, sustainable use of water resources, and mitigate potential negative effects upon the quality of inland and coastal water bodies.

Cruise ships and their passengers have a wide range of potential impacts on the water environment. Ships produce potential pollutants in terms of ballast water and oily bilge water. Passengers produce large volumes of sewage and other waste water every day. These outputs have potentially devastating impacts on marine water quality and biodiversity. Some ships have on-board wastewater treatment systems, but technologies which remove pollutants sufficiently to avoid any negative impacts are still under development. Wastewater discharge into the sea should therefore be avoided, and hence ports must provide adequate facilities for receiving and treating wastewater from ships. Ports must also ensure procedures are in place to minimise the risk of spills and polluted run-off, while monitoring water quality in the area. Finally, buildings within ports and at destinations have to ensure effective water resource management, particularly in terms of minimising the quantity of water consumed.

Atmosphere

Protect air quality, minimising greenhouse gas emissions and the potential impacts of air pollution and noise

Cruise tourism has impacts on the atmosphere which range from the local to the global level. Shipping has traditionally relied on heavy diesel fuels which result in the emission of significant quantities of pollutants. These can have major negative impacts on the environment, and can result in a wide range of health problems for local communities if used when ships are in port. Recently there has been a shift towards the use of cleaner fuels and emission reduction technologies, which result in considerable reductions in pollutants. Ports can provide incentives for use of these approaches, as well as increasing the availability of clean fuels, converting their own vehicles and equipment to low emission alternatives, and providing the infrastructure for onshore power supply. Measures may also be required to minimise the impacts of noise at the port on local residents. Destinations should promote and facilitate the use of low emission transport options. All players must also take appropriate steps to minimise the emission of greenhouse gases and adapt to the potential impacts of climate change.

Photo: Peer-Erik Carlsson

Energy

Implement appropriate measures to maximise energy efficiency and minimise total energy consumption, sourcing energy from sustainable sources wherever feasible.

Energy use is a significant source of costs and impacts for all members of the cruise industry. For cruise ships, the key issue is fuel efficiency, and various techniques are available to assist in reducing fuel requirements. The issues affecting electricity consumption on board a ship are similar to these associated with buildings at port and attractions, and the techniques available to increase efficiency are also similar. These include increasing the insulation of the external fabric, installation of efficient heating, ventilation and air conditioning systems, and use of efficient lighting and appliances. The potential for increasing the use of renewable energy sources should also be investigated by all involved.

CRUISE SHIP ISSUES AND IMPACTS

A cruise ship is effectively a floating village, accommodating up to 6000 people, and consequently has many of the same potential impacts.

Ships require numerous inputs, such as fresh water, energy (fuel or electricity), food and other consumables. They also have wide ranging outputs. From an environmental perspective the most significant of these are air pollutants, wastewater, and solid wastes, although there are many other potential impacts.

As a major component of the tourist industry, cruise lines must also address a wide range of social and economic issues, including the wellbeing of their employees, the health, safety, and satisfaction of their guests, the efficiency of operations (particularly transport), the management of their supply chains, and their impact on the cultures, communities, and heritage assets which make the destinations they visit attractive.

These issues and some of the strategies which are currently being taken to address them are described in the following pages.

Financial Impacts

For a cruise line to be sustainable, it is essential that it is profitable. Many cruise corporations now recognize that sustainability can be a source of competitive advantage. Many sustainability initiatives cost money to implement, but there is also scope for substantial cost savings to be achieved. For example:

- Many ports are now introducing differentiated charges for environmentally friendly ships. Cruise lines which produce less air pollution and water pollution will hence have lower operating costs.
- Marine fuel is one of the largest operating costs for cruise lines – any reduction in fuel consumption can result in considerable savings.
- Many cruise lines have been subject to substantial litigation costs in the past for failure to comply with legislation. The costs of compliance are generally far less than the costs of non-compliance.

In some cases, additional costs can be recovered through passengers paying more. Some research has suggested that many passengers are willing to pay more for environmentally friendly cruise travel (61% of passengers according to a recent survey by Oceana [3]). However, conflicting evidence exists; the introduction in 2006 of a US$46 per-passenger fee to visit Alaska has resulted in an estimated 140,000 fewer tourists visiting Alaska in 2010.

Cruise tourism has the potential to contribute positively to economic growth by generating revenue and creating jobs. While a ship is in port, guests and employees spend money on food, gifts, shore excursions and various other goods and services. Cruise ships also purchase food and beverages, fuel and other supplies in ports of call, as well as paying port fees, fairway dues, tug hire services and agent's fees, and investing in ship maintenance. Many factors influence the extent to which local economies benefit from cruise tourism, but a range of measures can be taken to ensure these are maximised.

3 Needless cruise pollution – Passengers Want Sewage Dumping Stopped, Oceana, 2003. Of those respondents who would pay more for a cruise, almost half (46%) indicated they were willing to pay one hundred dollars or more for such a cruise.

Employment

The quality of service provided by a cruise operator for its guests is dependent on its employees, and almost all cruise operators have a wealth of policies relating to the health, welfare, rights, and benefits of employees. These generally include protection of human rights (e.g. prevention of forced labour or child labour), non-discrimination, protection from harassment, safe and healthy working environments, freedom of association and collective bargaining, fair compensation and benefits, and compliance with International Labour Organization (ILO)[4] standards. Employee, motivation, engagement, and recognition are also common themes.

Different companies have a range of means of training staff and providing opportunities for advancement. These increasingly include environmental awareness training covering environmental impacts, policies and procedures and, where relevant, additional training to ensure compliance with applicable environmental management requirements and regulations. Some cruise companies have policies for the training and hiring of local personnel and sourcing from local businesses.

Reputation

Customer satisfaction is essential to the success of the cruise business. Most cruise lines spend a great deal of time collecting customer feedback, and using this information to inform future decisions about itineraries, destinations and excursions. While issues such as the quality of service affect guest satisfaction, the main goal of many companies is to provide guests with high quality, memorable experiences. Destinations with high levels of cultural and natural heritage (such as those in the North Sea Region) have clear advantages in this respect, although attracting large numbers of tourist can have detrimental effects on these features, if the impacts of tourism are not managed effectively.

A negative reputation can have a massive effect on a cruise line, and it is essential for cruise companies to manage reputational risks effectively. This includes contingency planning for health, safety, and environmental emergencies, and ensuring compliance with an ever-increasing number of laws and regulations. Some companies are taking more of a proactive approach - implementing sustainability improvements which go beyond compliance and pre-empt potential future changes in legislation.

A sustainable brand which addresses the concerns of stakeholders can also attract more custom from certain types of traveller, such as the LOHAS ('Lifestyle of Health and Sustainability') consumer segment. Recognition of the need to meet these concerns and foster a sustainable image is demonstrated by the fact that the majority of cruise lines operating in the region now publish an annual sustainability report.

4 Maritime Labour Convention, International Labour Organization, 2006, http://www.ilo.org

Management

Many cruise lines operate an Environmental Management System (EMS), the majority of which are certified to ISO14001. This provides a structured approach for managing, monitoring and minimising environmental impacts. Some companies have also expanded their management systems to incorporate a wider range of sustainability issues. A key component of an EMS is the setting of objectives and targets to ensure continuous improvement. Indicators for water consumption, waste production, energy use, and greenhouse gas emissions are commonplace. In addition to helping to track progress and ensure compliance with relevant regulations, continuous monitoring can help to detect problems at an early stage, allowing remedial actions to be taken quickly.

Supply Chain

Cruise lines are responsible for procuring a wide range of goods and services, from food, beverages, fuel and water, through onshore excursions and tour guides, to the construction of ships themselves. Due to their size, they have considerable purchasing power, and therefore have the potential to influence the quality, social and environmental standards used by suppliers. Most cruise companies have a purchasing policy which includes sustainability criteria. Policies may include preferring environmentally certified suppliers; purchasing materials with recycled content, fair trade products or organic foods; local sourcing of goods and services; monitoring guest safety and satisfaction on excursions; and ensuring appropriate management systems are in place. Many companies also undertake ongoing engagement with suppliers on sustainability issues, increasing awareness and helping to build capacity.

Quality

A key factor in achieving customer satisfaction is the quality of service provided. Most cruise lines operate some form of quality management system, often certified to the ISO 9001 standard. In some cases these form part of an integrated management system which includes health, safety, security, and environmental issues and ensures compliance with relevant regulations and standards.

Continuous improvement is needed in order to ensure that the changing requirements of customers, regulators and other stakeholders are addressed effectively. Innovation is seen as essential in ensuring a competitive advantage, and most cruise companies invest in new technologies and processes for improving performance, both in new construction and retrofitting existing ships. Particular focus areas appear to be fuel conservation, energy efficiency, reducing air emissions, and wastewater treatment.

Photo. Folgefonni Bref□rarlag

Travel

It is self-evident that travel issues are a key concern in the cruise industry. From the perspective of cruise lines, the most important factor is itinerary planning. This involves achieving an appropriate mix of destinations to attract guests and ensure customer satisfaction while optimizing speeds between ports of call to minimise fuel consumption and ensuring guests have the maximum possible time in port. Dynamic route planning can be used to adjust vessel speeds in relation to the times available for berths at the destination [5]. Factors such as winds and currents must be taken into account, in addition to managing departure schedules, and ensuring that destinations are sufficiently close together and have efficient berthing and tendering facilities. Once at a destination, it is important for passengers to have access to appropriate transport options to visit attractions, and that traffic and congestion are minimised.

5 MONALISA, a Motorways of the Sea TEN-T project: http://www.sjofartsverket.se/en/MonaLisa/

Wellbeing

Cruise lines recognize their responsibility for ensuring the health and safety of their employees and guests, and the majority of cruise company sustainability reports put considerable emphasis on this area. The construction, operation and management of cruise ships is governed by international legislation such as the Safety of Life at Sea Convention[6] (SOLAS) and the International Code for the Safe Management of Ships[7] (ISM), Most companies are certified to the OHSAS 18001 standard, and have management systems which ensure the identification and mitigation of potential hazards and prevention of injuries and ill health. Common actions include managing the purchasing, storage and use of chemicals, providing staff with appropriate training, and ensuring that ships and shoreside facilities are accessible for guest with disabilities. Security is also an important consideration, and potential destinations are evaluated for the level of security and stability in the port and the surrounding area.

Collaboration

Cooperative relationships exist at many levels within the cruise industry, and cruise lines are understandably central to many of these collaborations. Partnerships exist with groups ranging from international organisations such as the Cruise Lines International Association (CLIA) and the European Cruise Council (ECC), through government regulators, tour operators, port authorities and shipyards, to local suppliers, interest groups and destination partnerships.

Most cruise lines also participate in various charitable initiatives, providing financial and in-kind contributions to various non-profit organisations. Common themes include disaster relief efforts, conservation initiatives at destinations, donations of shipboard items to local community organisations during refurbishments, and employee volunteerism.

Culture

Cruise tourism relies on providing a package of enjoyable experiences to guests, and hence the availability of attractions of historical and/ or cultural significance is a key factor in selecting destinations. Protection of cultural heritage assets is therefore an important issue for cruise lines themselves, as well as for the destinations which they choose to visit. The daily arrival of thousands of cruise passengers has the potential to have negative impacts on the integrity of cultural heritage if it is not managed effectively.

6 International Convention for the Safety of Life at Sea, International Maritime Organization, http://www.imo.org/

7 Guidelines on the Application of the IMO International Safety Management Code (ISM) Code, International Chamber of Shipping

Land Use and Soils

Even while at sea, cruise ships have the potential to impact land resources. Indirect impacts include the effects of marine water pollution on coastlines (particularly due to oily bilge water or bunker fuel), abrasion and cavitation caused by waves and propellers, and the generation of large volumes of solid waste which must be disposed of in landfill if they remain unsorted once brought ashore. Furthermore, high numbers of tourists at a site can potentially cause increased soil erosion and destruction of land amenity.

Resources and Waste

There is a clear economic incentive for minimising the use of materials and managing waste effectively, and waste management is an issue of increasing concern for the cruise industry. The average cruise ship produces seven tons of solid waste every day[8]. Historically, much of this waste has been dumped at sea, but the regulatory environment governing the management of waste from cruise ships is becoming increasingly stringent[9].

Common forms of waste include glass, paper, cardboard, aluminium and steel cans, incinerator ash, plastics, and biodegradable waste (e.g. food). Cruise ships also produce a range of hazardous wastes – paint/ solvents, fluorescent and mercury vapour light bulbs, batteries, dry cleaning fluids, and hospital wastes. These must be carefully managed in order to avoid contamination of other waste streams and disposed of at approved facilities. Non-toxic products should be selected wherever feasible

Waste management involves following the waste hierarchy – implementing strategies to reduce waste production (e.g. minimising packaging through bulk purchasing), reuse where feasible (e.g. donation of used furniture to charities) and recycle the remainder. Wherever possible, all wastes should be sorted on-board and brought to shore for disposal and recycling. Recycling containers should be placed throughout ships, and sorted into standardized categories which match shoreside waste management facilities.

Many ships burn some of their waste in incinerators, which substantially reduce the volume of waste stored on-board. However, they can produce a wide range of air pollutants, including dioxins, NO_2, SO_2, CO_2, particulates, and toxic metals such as lead, cadmium and mercury. While some ships have improved incinerator technology, the impacts can still be considerable, and incinerators should be seen as a last resort.

The effectiveness of waste management on cruise ships is reliant on the provision of appropriate shoreside facilities, and coordination with ports is essential in order to ensure that these are provided. In the future, standardization of waste reception facilities between ports and cruise lines would be desirable.

8 Needless cruise pollution - Passengers Want Sewage Dumping Stopped, Oceana, 2003

9 MARPOL73/78 Annex V: Prevention of Pollution by Garbage from Ships, International Maritime Organization, http://www.imo.org/; Directive 2000/59/EC of the European Parliament and of the Council 27 November 2000 on port reception facilities for ship-generated waste , European Parliament and Council of the European Union

Biodiversity

As with cultural heritage, the availability of high quality natural assets at destinations is perceived as a major contributing factor to guest satisfaction, but a high volume of tourists visiting such biologically rich, sensitive attractions can have significant detrimental effects. These impacts have to be managed, and while some of that responsibility lies with the destinations, it is also in the interest of the cruise lines to ensure that natural heritage is preserved. This may involve restricting visitor numbers for certain excursions, providing guests with information about protected areas and how to minimise damage to them, or providing support for local conservation efforts.

Cruise ships can also have a negative impact on local biodiversity through the introduction of non-native species in ballast water. This water is used to enhance stability of the ship, and is often taken on in one location and then discharged at the next port of call. Minimising the use of ballast water, treating it before discharge, and using appropriate ballast water exchange practices can help in addressing this problem.

Ships which pass close to land generate waves that can affect both the seabed and nearby beaches. Ship-induced waves can increase variations in sea level and speed up erosion rates. The best way to decrease these effects is to reduce the speed of the ship.[10]

Water

Water pollution is one of the greatest environmental challenges posed by all shipping. The emission of pollutants can come in many forms, from spillages of bunker fuel, to leakages of oils and chemicals, to discharge of insufficiently treated sewage.

Managing these impacts effectively requires collaboration with ports of call. For example, green bunkering (covered in more detail later in the guide), provides a means of minimising risks of spills when transferring bunker fuel to ships through good communication, appropriate equipment, and the use of appropriately trained staff.

Every day an average cruise ship with 3,000 passengers and crew produces 115,000 litres of blackwater (sewage from toilets), 850,000 litres of greywater (wastewater from sinks, showers, and cleaning), and 26,000 gallons of oily bilge water[11]. In many cases, these are discharged out at sea. Grey water and blackwater are often discharged without prior treatment, and the treatment of other discharges is considered to be insufficient by many interest groups. However, treatment standards and discharge practices vary significantly between cruise companies.

10 Forskningsprogrammet MARBIPP 'Marine biodiversity, patterns and processes': http://www.marbipp.se/3arenden/4battraf/1.html

11 Needless cruise pollution - Passengers Want Sewage Dumping Stopped, Oceana, 2003

Some cruise lines now use significantly improved wastewater treatment systems beyond traditional Marine Sanitation Devices. Known as Advanced Wastewater Purification Systems (AWPS), or Advanced Wastewater Treatment Systems (AWTS), these treat water to much higher standards, although it can still not be recycled on-board and there are various technical and operational challenges which have yet to be fully addressed. The systems still filter solids from the sewage as part of the treatment, and if this sludge is dumped at sea then it still poses many environmental problems. Whatever treatment systems are used on-board, adequate port reception facilities are essential in order to enable cruise ships to avoid dumping wastewater or sludge at sea.

One relatively obvious way of reducing the volume of wastewater that has to be stored on board prior to shoreside disposal is to minimise the amount of water consumed. This has the added advantage of reducing the quantity of water that needs to be either purchased in port or produced on board (through desalination). Water consumption can be reduced through the installation of water efficient fittings (toilets, showers, taps and urinals) and appliances, reuse of laundry rinse water, collection and recycling of condensate water produced by HVAC systems, and encouraging guests to reduce their changes of linen and towels.

Atmosphere

A single cruise ship produces air emissions from engines and incinerators equivalent to 12,000 cars every day[12]. Among the main pollutants are nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and particulates (PM10). These emissions contribute to air pollution regionally and globally, but also impact air quality, and consequently local residents' health, in port communities. Amendments to MARPOL Annex VI, adopted in 2008, are intended to dramatically reduce atmospheric emissions of air pollutants from shipping.

Many cruise lines have air management programs to monitor emissions (with opacity meters) and reduce pollutants. Emissions are particularly problematic because many ships use heavy fuel oil bunker fuel to power their engines. The use of low sulphur fuel when in port (ideally less than 0.1%) and at sea (at least less than 1%), and the use of onshore power supplies, are possible means of minimising sulphur emissions. Some cruise lines are installing dual fuel motors which can be operated with both marine diesel and liquefied natural gas, while others are installing exhaust gas scrubbing technologies. Other strategies include fuel conservation, and the use of shore-side power supplies ('cold ironing') when in port. As mentioned previously, incineration of waste should be avoided in general, but especially when in port.

12 Ibid.

Energy

In addition to the implications in terms of CO_2 emissions and fossil fuel depletion, energy use is a significant cost for cruise ships, and most companies have energy management programs. It takes a great deal of fuel to move a cruise ship, and any reductions in fuel consumption can result in significant savings. Strategies for achieving this include itinerary planning, speed management, optimizing engine power, use of advanced propulsion systems, low friction hull coatings, and maintenance of hulls and propellers.

A range of strategies are also available to minimise energy consumption on board the ship. These include the use of low energy lighting with automatic controls, efficient Heating Ventilation and Air-Conditioning (HVAC) control systems, heat recovery systems, use of seawater to chill water on-board, and energy efficient glazing. Renewable energy sources are being considered by some companies and have been implemented on a small scale on some ships, but the current level of technology is not capable of addressing more than ancillary power requirements.

Strategies for sustainable cruise tourism

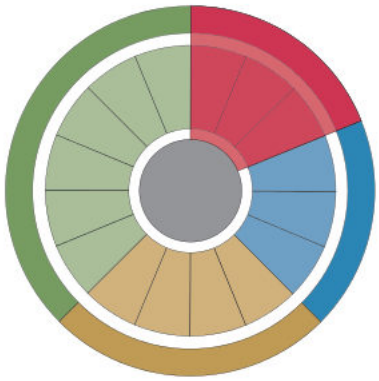
The following section outlines the range of strategies which are available to increase the sustainability of the cruise tourism industry. These are summarized separately for cruise ports, terminal buildings, and destinations, with strategies broken down against each of the main sustainability issues in each section.

Different strategies will be appropriate in different circumstances – in order to be addressed effectively, sustainability has to be considered in the context of local impacts and priorities.

It should be noted that many of the strategies in this section will affect multiple issues, and are also connected to other strategies – these are indicated by the numbered cross references. Sources of further information are provided for each area addressed.

CRUISE PORTS

Ports provide a key interface between cruise lines and the destinations they are visiting. They must therefore address many of the issues of importance to cruise ships, particularly in terms of the provision of suitable infrastructure and facilities, while also ensuring effective linkages and sustainable relationships with the destinations and communities around them. Furthermore, ports have a range of sustainability impacts in their own right, and these must also be managed.



Economic Financial Impacts

1. Economic incentive schemes

Related strategies:

26	47	63
42	55	64
43	57	69

Introduce differentiated port fees, providing reimbursement of a certain proportion of port charges for vessels which meet certain environmental standards, such as:

- switching to 0.1% sulphur fuels when in port;
- NOx abatement technologies such as catalytic converters fitted to engines;
- classification as having a 'good environmental performance' according to the Clean Shipping Index;
- high scores in the Environmental Ship Index (ESI);
- on board sorting of waste for recycling prior to shoreside collection,
- reduced water in sewage sludge discharged to shore facilities;
- use of onshore power supplies (in Sweden there is also a reduction in tax on electricity provided by onshore power supplies).

It should be noted, however, that individual ports risk losing competitiveness if they introduce economic incentives alone – collaboration between ports throughout the region and beyond is recommended in order to introduce appropriate incentives without losing business.

Sources of further information

- IAPH website for Environmental Ship Index: www.wpci-esi.org
- Clean Shipping Project website: www.cleanshippingproject.se
- Information concerning new fairway dues, Swedish Maritime Administration, 2004: www.sjofartsverket.se
- Port of Gothenburg Port Tariff: http://www.portofgothenburg.com/About-the-port/Port-Tariff/

- Ports of Stockholm, Pricelist for Cruise Liners 2013: http://www.stockholmshamnar.se/en/For-Customers/Price-lists/
- Port of Rotterdam ESI incentive program: http://www.portofrotterdam.com/en/Shipping/harbour-dues/Pages/Apply-ESI-discount.aspx

Economic – Employment

2. Staff training

Related strategies: 3, 12, 46, 53, 54

Implement training programs for port employees and managers to ensure awareness, competence, compliance, and performance on sustainability issues. The effective operations of a port rely on the availability of staff with suitable skills and experience. Training should include:

- awareness of environmental / sustainability policies and port issues and impacts;
- relevant legislative requirements and the implications of non-compliance;
- relevant procedures, to ensure staff have appropriate skill and experience to carry out operations effectively with minimum risks of negative impacts; and,
- task specific training (e.g. on the proper handling of hazardous materials).

3. Green bunkering certification

Related strategies: 2, 53

Provide all staff involved in bunkering operations with training in environmental carefully bunkering, including appropriate safety equipment, education, control procedures and communications to minimise the risk of spills.

4. Supporting small businesses

Related strategies: 16, 97, 126, 127, 144

Ensure local Small and Medium-sized Enterprises (SMEs) have opportunities to participate in all service contracts, providing additional education and assistance in meeting procurement requirements where necessary.

Sources of further information

- An Environmental Management System (EMS) Primer for Ports: Advancing Port Sustainability, United States Environmental Protection Agency, April 2007: www.epa.gov

Economic □Reputation

5. Marketing a sustainable port

Related strategies: 6, 7, 8, 11

Develop a clear, sustainable brand for region and the ports within it, and communicate this image to all relevant stakeholders. Cruise passengers want to visit destinations which have a good reputation. In developing a Unique Selling Proposition (USP), cruise ports should capitalize on the region's reputation for efficiency and environmental sustainability, and the current perspective of cruise lines that there are various sustainable ports within the NSR. Ports have the potential to enhance their credibility and public image by monitoring and reporting their impacts and distinguishing themselves as leaders in economic efficiency, environmental stewardship and social responsibility.

6. Group marketing with destinations

Related strategies: 32, 156

Collaborate with destination cities and surrounding areas to develop a marketing message that combines touristic attractions, ports and facilities in selling destinations to cruise lines.

7. Group marketing with other cruise ports

Related strategies: 31

Collaborate with other ports in the region in developing feasible cruise line itineraries incorporating a range of attractive cruise destinations, and proactively sell these proposals to cruise companies.

8. Sustainability reporting

Related strategies: 5, 9, 11, 12, 14

Provide publicly accessible information on the port's sustainability-related policies, strategies and performance. These can be published cost effectively via the port website. Include metrics demonstrating results of initiatives and commitments to continuous improvement. Consider producing an annual sustainability report.

9. Stakeholder engagement

Related strategies: 8, 10, 32, 86

Identify, consult, and cooperate with stakeholders on sustainability issues. Provide mechanisms for two way communication and feedback. Stakeholder buy-in helps to maintain the port's license to operate and facilitates acceptance of development proposals. Stakeholders include but are not limited to cruise lines, cruise passengers, tour operators, port associations, trade unions, local authorities, and local communities. Establish the most appropriate means of ensuring dialogue with each category of stakeholders.

10. Community relations

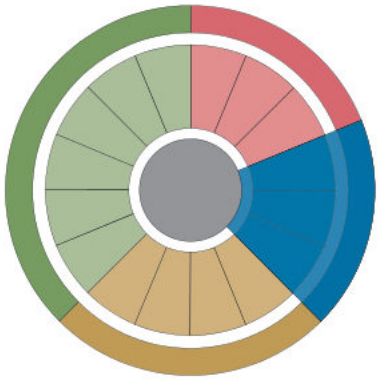
Develop and improve relationships with local residents. This could be done through regular consultation with a group of local representatives with an interest in the port's activities and its impact on neighbouring communities. Establish a formal complaints procedure and provide a means for environmental incidents and complaints (e.g. smells, noise, dust and water pollution) to be reported 24 hours a day. Take appropriate follow-up actions to minimise local nuisance problems.

Related strategies:

9	38	65
28	54	68
29	57	86
32	67	105

Sources of further information

- Decision Criteria for Cruise Port Selection in the North Sea Region, Cruise Gateway North Sea, September 2012
- An Environmental Management System (EMS) Primer for Ports: Advancing Port Sustainability, United States Environmental Protection Agency, April 2007: www.epa.gov
- Directive 2003/ 04 EC on 'public access to environmental information', European Parliament and Council of the European Union, 28 January 2003
- The Port Environmental Review System (PERS), ESPO: http://www.ecoports.com/
- ESPO Code of Practice on Societal Integration of Ports, ESPO, 2010: http://www.espo.be
- UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, (the Aarhus Convention), June 25, 1998



Technical Management

11. Environmental Management Systems

Related strategies:

2	15
8	16
12	17
13	21
14	

Implement an Environmental Management System (EMS) to proactively manage and continually improve the environmental performance of the port. An EMS is a systematic approach which provides a structured framework for addressing environmental issues and helps to reduce the risk of environmental incidents. It builds on and helps to integrate existing procedures and systems, and should be adapted to the port's culture and priority issues.

The core of an EMS is the PDCA (Plan-Do-Check-Act) methodology – an iterative process which involves establishing objectives, implementing plans, reviewing results, and corrective action. A typical EMS process will include the following steps:

- defining the scope (which port facilities and activities the EMS will address);
- assigning roles and responsibilities;
- creating an environmental policy statement;
- identifying relevant laws, regulations, and standards which the port must comply with;
- identifying environmental aspects of operations and their actual or potential environmental impacts, quantified where possible; and determining those of most significance (i.e. those which should be prioritized);
- establishing objectives, targets, and action plans;
- developing operational controls and emergency preparedness programs;
- establishing staff training programs, communications channels, and required documentation;
- monitoring, measuring, recording and reporting performance (including internal audits and compliance checks);
- taking corrective and preventative actions; and
- conducting regular management reviews to ensure the EMS is suitable and effective.

The EMS should be certified to either ISO 14001 or EMAS. The European Sea Ports Organisation (ESPO) has developed several tools specifically for the implementation of EMSs in ports – the Self Diagnosis Method (SDM) for identifying environmental risk and establishing priorities for action, and the Port Environmental Review System (PERS).

12. Sustainable port policies

Related strategies:

11 16 14 18

Develop a sustainability policy statement and strategy for the port. This should include:

- a high level sustainability vision for the port;
- specific sustainability principles to serve as a guide for decision making;
- a series of objectives for each element of the policy;
- specific metrics to measure progress toward meeting the objectives; and
- specific actions designed to achieve progress toward the objectives.

13. Sustainability assessment of future developments

Related strategies:

14 39 78

Conduct appropriate assessments of the economic, social and environmental impacts of proposed future developments of infrastructure and facilities at the port, and other actions which may have significant consequences in terms of sustainability. In some cases, these may be required under the terms of the Environmental Impact Assessment (EIA) Directive and the Strategic Environmental Assessment (SEA) Directive. However, even when not required by legislation such assessments can help to ensure that all potential impacts are considered and optimized.

14. Indicators and monitoring performance

Related strategies:

9 41 77 11 52 101 17 58 111 27 66

Monitor the impacts of operations associated with significant issues. These may include areas of concern to stakeholders or impacts associated with regulatory compliance. Ideally, indicators should be developed in collaboration with key stakeholders and partners along the value chain, to enable efficient sharing and aggregation of standardized performance data. Issues such as data availability and cost of implementation must also be taken into account. Likely key impacts requiring monitoring include air quality (CO_2, SOx, NOx, and particulates), water quality, waste treatment, and noise levels.

15. Continuous improvement

Related strategies:

21

Aim for continuously improvement in performance, incorporating new concepts and technologies as they become available and monitoring strategies and systems to ensure that they remain fit for purpose. Sustainability is a process, not a goal.

Sources of further information

- An Environmental Management System (EMS) Primer for Ports: Advancing Port Sustainability, United States Environmental Protection Agency, April 2007: www.epa.gov
- ESPO Green Guide: Towards excellence in port environmental management and sustainability, ESPO, 2012: http://www.espo.be
- Self Diagnosis Method (SDM), ESPO: http://www.ecoports.com/
- The Port Environmental Review System (PERS): http://www.ecoports.com/
- ISO 14001:2004, International Standards Organization, http://www.iso.org/iso/iso14000
- Regulation (EC) No 1221/ 2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), European Parliament and Council of the European Union, 22 December 2009
- Extending Supply Chain Sustainability Metrics to Terminal Operations, BSR, May 2011: http://www.bsr.org
- Indicators of Sustainable Development for Tourism Destinations, UNWTO, 2004
- Port of Los Angeles Sustainability Assessment, June 2008: http://www.portoflosangeles.org/environment/sustainability.asp

Technical □ Supply Chain

16. Supply chain performance requirements

Related strategies: 12, 17, 18, 78, 79

Incorporate sustainability requirements into contract documents and lease agreements wherever possible. These might include expected standards regarding air emissions, water consumption, energy efficiency, noise generation, environmental performance of distribution vehicles, waste management practices. Carry out periodic audits and inspections to ensure that tenants, suppliers and contractors comply with the agreements. Provide incentives, either in terms of financial gains for good performance, or increased visibility through 'best supplier of the year' awards.

17. Supply chain metrics and monitoring

Related strategies: 14, 15, 16

Develop an effective and efficient common framework to capture, aggregate and share data to monitor performance along the value chain. Transparency should help to foster strong supply chain relationships, facilitating a common understanding of the issues and enabling more focused discussions on performance expectations.

18. Environmentally Preferable Purchasing

Related strategies: 11, 16, 71, 93

Establish a policy for the procurement of environmentally preferable products, equipment, and services whenever possible, and give preference to suppliers with externally certified EMSs and environmentally friendly supply chains.

Sources of further information

- An Environmental Management System (EMS) Primer for Ports: Advancing Port Sustainability, United States Environmental Protection Agency, April 2007: www.epa.gov
- ESPO Green Guide: Towards excellence in port environmental management and sustainability, ESPO, 2012: http://www.espo.be
- ECOSTARS Fleet Recognition Scheme: http://www.ecostars-europe.eu/en/
- Extending Supply Chain Sustainability Metrics to Terminal Operations

Photo: Anders Thornblad, Nicola Evans

Technical Quality

19. Port facilities

Ensure that the port has the necessary facilities to meet the requirements of cruise lines and passengers. Required facilities will vary depending on the type of port (i.e. whether it is a home port or a port of call), but most cruise companies require luggage handling space, an efficient cruise terminal, security and customs facilities, and waiting facilities as a minimum. The quality of these facilities will have a significant impact on the perception of the cruise port. Implementing a quality management system certified to the ISO 9001 standard may facilitate systematic control of port activities to ensure facilities and services meet customer expectations.

Related strategies:

81

135

20. Aesthetics and port environmental quality

Related strategies: 33, 39, 48, 74, 87

Design, construct and maintain port buildings, facilities, and external spaces to protect and enhance the visual amenity of the area. The aesthetic quality of spaces in the port will affect the port's image with tourists and the general public. Integrate water and additional green spaces, with appropriate planting of trees and shrubs, into landscaping of open space around the port, taking the surrounding landscape character into consideration. In addition, the cleanliness of pier and port contributes to the overall image of the destination.

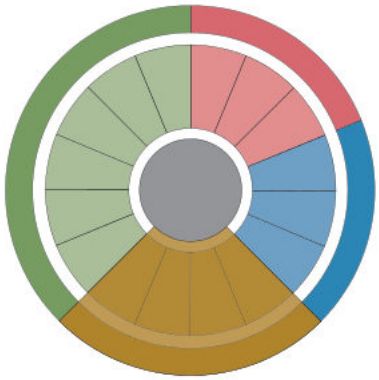
21. Driving sustainable change

Related strategies: 15

Employ best available technology to avoid or reduce environmental impacts, and invest in projects incorporating new concepts and demonstrating the feasibility of new sustainable technologies.

Sources of further information

- ESPO Green Guide: Towards excellence in port environmental management and sustainability, ESPO, 2012: http://www.espo.be
- ISO 9001:2008 Quality Management Standard: http://www.iso.org/iso/home/standards/management-standards/iso_9000.htm
- Port Technologies and Management Strategies, United States Environmental Protection Agency, 2010
- Environmental Initiatives at Seaports Worldwide: A Snapshot of Best Practices, International Institute for Sustainable Seaports / Global Environment & Technology Foundation, 2010
- Fishing for Litter: http://www.fishingforlitter.org/
- Inventory of Innovative Technologies for the US Seaports, International Institute for Sustainable Seaports / Global Environment & Technology Foundation, 2010
- ESPO Code of Practice on Societal Integration of Ports, ESPO, 2010: http://www.espo.be
- Tourist facilities in ports: Growth opportunities for the European maritime economy, European Commission, 2009



Social Travel

22. Traffic Management

Related strategies:

24 135
28 149
57 150

Prepare and implement a traffic management plan to minimise port impacts on vehicle and pedestrian traffic. Congested ports can have a negative impact on the experience of tourists visiting the destination. In addition, traffic congestion can lead to a significant increase in air emissions in the port area, with potential negative impacts on the health of local communities. Effective traffic management can help to maintain flows, mitigating air quality issues while enhancing the operating efficiency of the cruise terminal.

23. Green travel plans

Related strategies:

24 83
25 84

Develop and implement a green travel plan for port employees, with the aim of reducing the need to travel and promoting a shift to more sustainable modes of transport. Common actions include providing facilities to reduce business travel such as videoconferencing / teleconferencing, implementing a car share scheme for employees / contractors, and providing cycle parking with associated facilities (lockers and showers).

24. Public transport infrastructure

Related strategies:

22 151
23 152
25

Ensure high quality public transport connections between the port and the destination, especially to key attractions. Encourage and facilitate the use of public transport by cruise passengers and tour groups. Provide appropriate waiting facilities at the port, aiming to bring public transport infrastructure (e.g. railway lines) in to the port wherever feasible. In some cases a long charter train may be more efficient and practical as a means of transporting passengers than a fleet of buses. Provision for short distance ferry transport from the cruise terminal should also be considered.

Photo: Kristoffer Persson

25. Environmentally friendly vehicles

Related strategies: 23, 24, 59, 152, 182

Procure or convert vehicles within the port area and those connecting to destination attractions to environmentally friendly fuels (such as LPG, biogas, or biodiesel) or increase their fuel efficiency (such as using hybrid vehicles). Buses, taxis, shoreside vehicles, and harbour craft vessels can all be converted to reduce fuel consumption and emissions. Conduct training for drivers on environmental driving behaviours, which can have a significant impact on fuel consumption and related emissions.

26. Vessel speed reduction

Related strategies: 1, 57

Implement incentives for vessels to reduce their speeds in proximity to the port, hence reducing the emission of air pollutants.

Sources of further information

- Decision Criteria for Cruise Port Selection in the North Sea Region, Cruise Gateway North Sea, September 2012
- Tourist Facilities in Ports – Enhancing Sustainable Growth of Cruise Tourism in Europe, Policy Research Corporation, 2009
- RAILPORT Scandinavia: http://www.portofgothenburg.com/Line-selection/RAILPORT-Scandinavia/

Social Wellbeing

27. Health and safety management

Related strategies: 2, 14, 29, 73

Implement port-wide systems to ensure systematic management of health and safety issues and risks, and promote the highest possible safety standards. Ensure procedures are in place to monitor and report incidents and implement corrective or preventative actions raised.

28. Health of surrounding communities

Related strategies: 10, 57, 105

Take actions to minimise health risks to local populations resulting from the activities of the cruise port. Most significantly, measures should be taken to reduce air pollutants such as particulates, which are particularly harmful for human health and can increase risks of asthma, other respiratory diseases, cardiovascular disease, and lung cancer.

29. Emergency preparedness and response

Related strategies:

2 27 28 36 46 53 54

Prepare and implement an effective emergency preparedness and response program, in collaboration with relevant national and local authorities. The program should include assessing the potential for incidents, preventing incidents, implementing appropriate plans and procedures in the event of an emergency, periodic testing of plans and procedures, and mitigating impacts associated with accidents and emergencies. An effective program can help to reduce injuries and health risks, minimise environmental impacts, and reduce asset loss in the event of an incident.

Sources of further information

- Environmental, Health, and Safety Guidelines for Ports, Harbors, and Terminals, International Finance Corporation, 2007
- International Convention for the Safety of Life at Sea (SOLAS), International Maritime Organization, 1974: http://www.imo.org
- Memorandum of Understanding on Sustainable Port and Maritime Policy in the Baltic Sea Region, New Hansa of sustainable ports and cities, 1 January 2006
- Directive 2008/ 50/ EC on ambient air quality and cleaner air for Europe, European Parliament and Council of the European Union, 21 May 2008
- ESPO Code of Practice on Societal Integration of Ports, ESPO, 2010: http://www.espo.be

Social Collaboration

30. Sharing best practice

Related strategies:

31 32 142 156

Develop cooperative knowledge sharing networks involving all interested parties (e.g. port associations, cruise lines, service companies) to discuss the issues, exchange experiences, develop awareness of successful project implementations, and leverage collective knowledge and best practices. Collaboration should also work towards the standardisation of technologies (e.g. onshore power supplies) and processes (e.g. waste sorting and collection). Knowledge sharing may be conducted through meetings, workshops, conferences, or electronic forums.

31. Collaboration with other ports

Develop long-term international co-operation between ports in the NSR, drawing public attention to best practices being implemented and creating joint offerings as a clearly defined region to attract passengers and cruise lines.

Related strategies:

7 21
15 30

32. Port-destination relationship

Develop strong, lasting co-operation between the destination and the port, focused on integrating the port with the surrounding area and developing the attractiveness of the destination for cruise tourism. Redevelop areas around the port where necessary, strengthening interconnections and creating a mix of uses which blend into the port area.

Related strategies:

6 39
10 156

Sources of further information

- Cruise Gateway North Sea: http://www.cruisegateway.eu/
- European Sea Ports Organisation: www.espo.be
- EcoPorts network of ports: www.ecoports.com
- European Federation of Inland Ports: www.inlandports.eu
- International Association Cities and Ports: www.aivp.org
- Cruise Copenhagen Network: http://www.cruisecopenhagen.com/
- ESPO Code of Practice on Societal Integration of Ports, ESPO, 2010: http://www.espo.be
- Memorandum of Understanding on Sustainable Port and Maritime Policy in the Baltic Sea Region, New Hansa of sustainable ports and cities, 1 January 2006

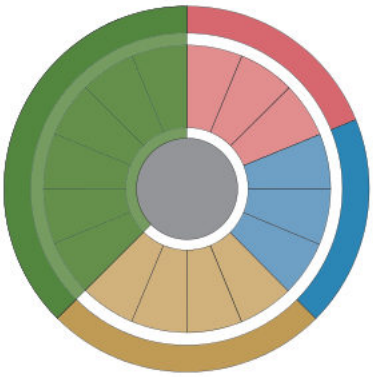
Social Culture

33. Protection and emphasis of port heritage

Identify any protected heritage assets on the port site and ensure their protection. Provide tourists and other visitors with access to information on the history of the port and relevant assets of heritage interest.

Related strategies:

20
87



Environmental – Land Use and Soils

34. Environmental management of dredging operations

Related strategies:

35 48
36 52
37

Conduct dredging operations using best management practices to minimise impacts on sensitive resources. While the dredging of sediments is an essential activity for maintaining channel depths and maintaining accessibility, it has the potential for significant environmental impacts and may in some cases be subject to legislation such as the Habitats Directive, the Water Framework Directive, and the Directive on environmental quality standards in the field of water policy. Impacts on water quality should be monitored during every dredging project. Techniques should be employed to minimise negative impacts, such as using environmental buckets or, if that is not possible due to the sediment properties, use of very large completely filled buckets which will minimize sediment spill. Dredging should also be avoided during sensitive periods for local aquatic species.

35. Management of dredged sediments

Related strategies:

34
37
40

Assess the quality of dredged sediments to determine whether they are contaminated, and take appropriate steps to handle, and reuse or dispose of contaminated sediments in an environmentally sound way. Dredged sediments should be beneficially reused wherever feasible. Possible applications include remediation of contaminated sites, landfill cover, or creating new land for port uses. Sandy sediments may be placed at sea in the coastal area, in a way that contributes to the prevention of beach erosion.

36. Avoid contamination of soil

Related strategies:

46 54
50 88

Take measures to avoid the introduction or accumulation of hazardous substances in soils, ensuring that they do not compromise the soil quality or create a risk for the human health or the environment. This can be achieved through effective spill management procedures, run-off quality control, and appropriate handling of hazardous materials.

37. Remediation of contaminated sites

Related strategies:

35 50

36 90

Assess sites for potential contamination during redevelopment and remediate contaminated land in the port area, treating contaminated soils or rendering them suitable for beneficial reuse. This improves the quality and value of land on the site, ensures efficient land use, and minimises potential negative impacts on human health and local biodiversity.

38. Light pollution

Related strategies:

10 113

48 165

Avoid light pollution into the night sky or surrounding areas. This can be achieved by using light fittings which minimise the spread of light upwards, and designing lighting schemes in a way that ensures that light is not directed beyond the site boundaries or upwards without falling directly on a surface with the explicit purpose of illuminating that surface. This will minimise disturbance of the breeding and migration patterns of birds in the area and help to reduce light-related complaints from local residents.

Photo: Kristoffer Persson

39. Land use planning

Related strategies:

9	90
10	163
32	164

Plan port development from a long-term perspective, through close consultation with relevant stakeholders. Port development in Europe is more and more constrained by scarcity of land. New cruise-related developments (such as piers and terminals) should be planned and designed with a view to increasing integration with the surrounding area, enhancing interconnections between the port and the city, and making the most efficient use of land resources. Extensive consultation should be carried out with local residents, planning authorities, and other stakeholders, in order to find win-win solutions which achieve the optimum balance between the complex range of issues and impacts associated with the development process.

Sources of further information

- Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (Water Framework Directive), European Parliament and Council of the European Union, 23 October 2000
- Directive 2008/105/EC of the European Parliament and of the Council on environmental quality standards in the field of water policy, European Parliament and Council of the European Union, 16 December 2008
- Proposal for a Directive of the European Parliament and of the Council establishing a framework for the protection of soil and amending Directive 2004/35/EC, European Commission, 2004
- Communication from the Commission. Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU, COM/2008/0791, European Commission 25 November 2008

Photo: Mikael Andersson, John Morton

Environmental – Resources and Waste

40. Waste planning and management

Establish, implement, and regularly review an integrated Waste Management Plan to regulate how the port deals with waste from cruise ships and waste generated on site. The plan should include consideration of the type, capacity, and location of facilities required. It should be developed through consultation with cruise lines and other port users, to ensure that waste management processes and facilities are suitable for the types and volumes of waste generated and the level of waste segregation conducted on board ships. Waste should be managed according to the waste hierarchy (reduce, reuse, recycle, recovery, disposal). The plan and facilities should be publicized to everyone involved in the waste management process. In addition, the port should set a good example by demonstrating excellence while managing waste generated on site.

Related strategies:

41	44	47
42	45	91
43	46	166

41. Monitoring waste

Engage in effective communication with cruise lines and ensure prior awareness of the quantities and types of waste that ships want to deliver, in order to optimise waste reception on arrival. Monitor the volumes and types of waste generated and their method of treatment. Set targets for reducing waste production, and for reuse and recycling rates. Monitor cruise lines and other port users to ensure that they comply with waste management policies and relevant regulations.

Related strategies:

14	43
40	45

42. Waste reception facilities

Related strategies: 40, 43, 44, 46

Provide state-of-the-art waste reception facilities with sufficient capacity to receive the wide range of waste streams produced by cruise ships. Collection facilities for ship generated waste should be provided on quays wherever feasible, and should be designed to ensure that waste reception can be conducted in an efficient and effective manner.

43. Collection of waste fractions

Related strategies: 40, 41, 42, 44, 45, 46

Ensure that facilities include sufficient containers for all waste fractions delivered, so that waste which has been sorted and segregated on-board ships remains separated. Recommended fractions include: paper, cardboard, coloured and uncoloured glass, metals, plastics, biodegradable waste (e.g. food), combustible waste (for incineration), non-combustible waste, and hazardous wastes. Containers should be marked clearly to avoid confusion. Information on the sorting of fractions should be provided in several languages and distributed through agents to the owners and the crew.

44. Developing common waste collection procedures

Related strategies: 31, 40, 42, 43

Ports in the region and beyond should collaborate to ensure consistency in waste management procedures. A harmonized system should be developed to increase the efficiency and effectiveness of waste collection processes. This should include the types of fractions collected and the ways in which waste containers are labelled (e.g. standardisation of colouring). Ideally, cruise lines would also be involved in this process to ensure consistency in the sorting of waste fractions on-board ships and alignment with fractions collected in port.

45. Waste recycling and recovery

Related strategies: 40, 41, 43, 46, 98

Reduce the quantities of waste sent to landfill to the greatest extent possible. In line with the waste hierarchy, once waste production has been minimised and wastes reused where feasible, recycling should be prioritised. Segregated recyclable waste streams should be collected by a waste contractor and transported to licensed waste disposal facilities for recycling. Audits should be carried out to ensure that waste streams are dealt with appropriately. Any non-hazardous waste which cannot be recycled and is combustible should be incinerated in a waste-to-energy plant.

46. Dealing with hazardous wastes

Related strategies: 27, 40, 43, 45

Identify hazardous wastes and ensure their safe handling and storage. Permanent, appropriately marked reception facilities should be provided for hazardous wastes, including separate containers for various fractions, such as waste oils, oil contaminated materials, paints, solvents, aerosols, batteries, electrical waste, light bulbs, and medical wastes. Hazardous wastes must be collected under supervision of sufficiently trained personnel. Ensure wastes are removed by licenced contractors and disposed of at an approved facility, in compliance with relevant legislation.

47. Waste management charges

Related strategies: 1, 40, 43

Include waste collection fees within the port dues, with incentive schemes to encourage effective waste management. Under the polluter pays principle, the costs for disposal of ship generated wastes should be met by the cruise lines. However, waste management should be economically appealing and cost recovery systems should provide no incentive for ships to discharge their waste into the sea. A compulsory fee should be applied whether or not waste is transferred, with a discount applied which incentivises the sorting or prior treatment (compacting / grinding) of waste on board ships prior to transfer.

Sources of further information

- ESPO Environmental Code of Practice, ESPO, 2004, http://www.espo.be
- International Convention for the Prevention of Pollution from Ships (MARPOL) 73/ 78, International Maritime Organization: http://www.imo.org
- Comprehensive Manual on Port Reception Facilities, International Maritime Organization: http://www.imo.org
- ESPO Green Guide: Towards excellence in port environmental management and sustainability, ESPO, 2012: http://www.espo.be
- Port of Dover - Ships' Waste Management Plan: http://www.dover-port.co.uk/_assets/client/images/collateral/Ships%20WMP%20ammended.pdf
- Ports of Stockholm - Waste instructions for cruise vessels: http://www.stockholmshamnar.se/en/Services--prices/Waste-instructions-for-cruise-vessels/
- Port of Rotterdam: General information for waste disposal: http://www.portofrotterdam.com/en/Shipping/sea-shipping/Pages/waste-disposal.aspx
- Towards a thematic strategy on the prevention and recycling of waste, European Commission, 27 May 2003

- Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues, European Parliament and Council of the European Union, 2000
- Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, European Parliament and Council of the European Union, 2006
- Council Regulation (EEC) No 259/93 of 1 February 1993 on the supervision and control of shipments of waste within, into and out of the European Community, Council of the European Communities, 1993
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives, European Parliament and Council of the European Union, 2006
- Council Directive of 12 December 1991 on hazardous waste (91/689/EEC) amending Directive 78/319/EEC on hazardous waste, Council of the European Communities, 1991

Environmental – Biodiversity

48. Habitat protection, restoration and enhancement

Identify important habitats in the area of the port and implement measures for their preservation, restoration and, where appropriate enhancement. This should include both land based and aquatic ecosystems. Ports often operate in close proximity to sensitive habitats including estuaries and wetlands. This issue is particularly important during port development projects and dredging operations. Many ports are located within or contain a Natura 2000 designated site, and any developments must be assessed in line with the requirements of the Habitats Directive.

Related strategies:

36 38 39 49 54 57 65 89 99 100

49. Ballast Water Management

Related strategies:

48

Monitor the practices of cruise ships visiting the port to ensure that effective ballast water exchange practices and technologies are employed, so that ballast water is treated in a way that avoids the introduction of invasive species and other potential negative impacts on local biodiversity.

Sources of further information

- ESPO Code of Practice on the Birds and Habitats Directives, ESPO, 2007: http://www.espo.be
- The implementation of the Birds and Habitats Directives in estuaries and coastal zones, with particular reference to port development and dredging, European Commission, 2011.
- Council Directive of 2 April 1979 on the conservation of wild birds, Council of the European Communities, 1979
- Council Directive 92/ 43/ EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, Council of the European Communities, 1992
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- Our life insurance, our natural capital: an EU biodiversity strategy to 2020 , European Commission, 3 May 2011
- International Convention for the Control and Management of Ships´ Ballast Water and Sediments, International Maritime Organisation, 2004: http://www.imo.org/
- Guidelines for ballast water exchange (G6). Resolution MEPC.124 (53), IMO Marine Environment Protection Committee, 2005: http://www.imo.org/
- Information Reporting on Type Approved Ballast Water Management Systems. Resolution MEPC. 175 (58), IMO Marine Environment Protection Committee, 2008: http://www.imo.org/

Environmental – Water

50. Storm water management

Related strategies: 36, 51, 54, 100, 103

Design, provide and maintain appropriate drainage systems to reduce peak runoff flows and ensure that runoff does not flow directly into adjacent surface waters. Use sustainable drainage solutions such as permeable surfaces, green roofs, swales and wetlands where feasible. Use filter equipment in surface water drains and other surface water treatment measures to reduce the risks of water pollution from contaminated runoff.

51. Flood risk management

Related strategies: 50, 61

Assess the risk of flooding on the site including the potential for water table changes and sea level rise, and implement appropriate mitigation measures to minimise the potential for damage from flood events.

52. Water quality monitoring

Related strategies: 14, 34, 39, 53, 54

Carry out regular monitoring of water quality in and around the port. This should include monitoring of harbour water quality, surface water runoff quality, sediment quality. Continuous monitoring enables early identification and correction of water quality issues. Water quality parameters could include pH, temperature, dissolved oxygen, biological oxygen demand, turbidity, conductivity, oils, metals, PAHs, and total dissolved solids. Ship ballast, sewage and bilge discharges should also be monitored, in cooperation with Port State Control. If pollutants exceed predefined limits ensure that all relevant port users are notified and that measures are taken to reduce emissions.

53. Green bunkering

Related strategies: 2, 3, 9, 29, 54

Implement green bunkering procedures at the port and regularly monitor compliance, to minimise risks of water pollution during bunkering operations. Only use bunker ships which have a green bunker card. Ensure that appropriate equipment is provided on bunker ships, that good communications are established between bunker ships and receiving ships, and that everyone involved has appropriate training. Work with all stakeholders involved (fuel suppliers, bunker ships, local authorities, cruise lines) to ensure that best practices are implemented and maintained.

Photo: Mikael Andersson, John Morton

54. Spill prevention and incident management

Implement measures to minimise the risks and impacts of land-based spills of liquid products (e.g. petroleum, oils, chemicals) which may cause contamination of land, groundwater, or surface waters. Establish spill monitoring for the immediate detection of spills and implement proven emergency response procedures to minimise impacts if spills do occur. Provide emergency spill kits and ensure that relevant employees are trained in how to use them.

Related strategies:

27

29

36

55. Wastewater reception facilities

Ensure that sufficient reception facilities are in place to collect wastewater from cruise ships. Permanent reception facilities for wastewater should be provided on quays whenever possible. Ensure appropriate adaptors exist to enable connection with all visiting cruise ships. Collaborate with cruise lines and other ports in order to standardise wastewater connections with vessels. It should be noted that the IMO has recently decided on a future ban on discharging sewage straight into the sea, and this will make adequate wastewater management facilities in ports essential. At present, European ports must be able to receive sewage from passenger ships at a minimum of 200 cubic metres per hour discharge.

Related strategies:

1

56

56. On site wastewater treatment / sewage treatment plant

Related strategies:
55
104

Provide facilities to ensure that wastewater from cruise ships is treated appropriately. In some cases, discharged black- and greywater may be transferred to municipal sewage systems where feasible, for delivery to a local wastewater treatment plant. In these cases ports should obtain certificates from cruise ships to guarantee the quality of wastewater directed to a wastewater treatment plant. However, other forms of waste produced by cruise ships may be too contaminated to be accepted in municipal plants, and must therefore be treated either on board the cruise ships or at dedicated shoreside facilities. Consultation should be conducted with cruise lines, local authorities, and wastewater companies to ensure appropriate solutions are developed and implemented.

Sources of further information

- International Convention for the Prevention of Pollution from Ships (MARPOL) 73/ 78, International Maritime Organization: http://www.imo.org
- International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC), International Maritime Organisation, 1990, http://www.imo.org/
- Directive 2000/ 60/ EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, European Parliament and Council of the European Union, 2000
- Directive 2008/ 105/ EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, European Parliament and Council of the European Union, 2008
- Regulation (EC) No 2099/ 2002 of the European Parliament and of the Council of 5 November 2002 establishing a Committee on Safe Seas and the Prevention of Pollution from Ships (COSS) and amending the Regulations on maritime safety and the prevention of pollution from ships, European Parliament and Council of the European Union, 2002
- Directive 2005/ 35/ EC of the European Parliament and of the Council of 7 September 2005 on ship source pollution and on the introduction of penalties for infringements, European Parliament and Council of the European Union, 2005
- ESPO Green Guide: Towards excellence in port environmental management and sustainability, ESPO, 2012: http://www.espo.be
- A Blueprint to Safeguard Europe's Water (COM/ 2012/ 0673), European Commission, 14 November 2012
- Green Bunkering in the Port of Gothenburg, http://greenbunkering.com/

Photo: Marthinus Retief

Environmental – Atmosphere

57. Minimising air pollution

Implement technologies and procedures to minimise the emissions of air pollutants associated with port activities. Key pollutants include nitrogen oxides (NOx), sulphur oxides (SOx), carbon oxides (COx), particulate matter (PM10, PM2.5), ozone, heavy metals and volatile organic compounds (VOCs). Most of these pollutants originate from burning of fuels in engines on cruise ships and shoreside vehicles and equipment. They can have wide ranging health and environmental effects, from local respiratory problems, to regional acidification, to global climate change. Provide incentives (reduced fees or favourable mooring locations) for cruise ships to reduce emissions when in port, such as through the use of onshore power supplies.

Related strategies:

25 65
28 69
58 105
59

58. Air quality monitoring

Monitor the port area for early identification of air quality problems. Monitoring should include NOx, SOx, COx, PM10, PM2.5, and VOC concentrations. It is recommended that both stationary and mobile monitoring stations are used, and the location of mobile stations should be changed annually. If pollutants exceed predefined limits ensure that all relevant members of staff are notified and that measures are taken to reduce emissions.

Related strategies:

14
57

59. Low emission port vehicles and terminal equipment

Invest in low emission and fuel efficient service vessels, shoreside vehicles, and terminal equipment. Fuel options include liquefied propane gas (LPG), liquefied natural gas (LNG), compressed natural gas (CNG), fuel cells and biofuel. Implement a maintenance schedule for all vehicles and equipment to ensure that they are operating to appropriate standards.

Related strategies:

25
57
60

60. Greenhouse gas management

Implement a climate action plan to reduce emissions of carbon dioxide and other greenhouse gases resulting from port operations and development, as well as transport connections with the port. Calculate the carbon footprint of the port as a whole, and establish the separate footprints of port activities, services, processes and machinery. Adopt the World Ports Climate Declaration, and set reduction targets which aim towards carbon neutrality.

Related strategies:

23
24
25
70
71
111
112
113
114

61. Climate change adaptation

Complete a climate change risk assessment in order to evaluate, manage, and mitigate potential risks associated with climate change. Identify appropriate adaptation measures to minimise the vulnerability of port infrastructure and enhance resilience to climate change.

Related strategies:

51
60
99
115

62. Liquefied Natural Gas

Related strategies: 1, 57, 60, 64

Provide suitable space in the port area for LNG bunkering facilities. LNG provides a bridging technology on the way to emission-free fuels. Use of LNG results in massive reductions in emissions of sulphur oxides and particulates, and a substantial reduction in NOx emissions.

As a result it creates a cleaner and healthier work environment for people in the port and on board ships, and helps to minimise the effects of air pollution on surrounding communities. Further work is needed, however, to ensure standardisation of bunkering equipment to facilitate LNG bunkering.

63. Low sulphur fuel

Related strategies: 1, 57, 64

Encourage the conversion of ships visiting the port to low sulphur fuels. When in port, incentives should be provided to cruise ships that use 0.1% sulphur fuels, in order to reduce local sulphur dioxide pollution. Annex VI of the IMO MARPOL Convention designates the North Sea, the English Channel and the Baltic Sea as Sulphur Emission Control Areas, and consequently the sulphur content of marine fuel used in the whole region must be reduced to 0.1% by 1 January 2015, so this issue will have to be addressed by all ships in the NSR in the near future (there are on-going discussions and evaluation on also introducing a NECA (NOx Emission Control Area) which may have a potential impact in the future). Ports should also ensure that infrastructure exists to be able to supply an appropriate quantity of low sulphur fuel to visiting vessels.

64. Certification of environmentally friendly ships

Related strategies: 1, 49, 55, 57, 60, 62, 63

Offer a discount in harbour fees to cruise ships which are certified to an appropriate level through a scheme for environmentally friendly shipping. Various schemes with a focus on air pollution exist, including the Green Ship of the Future, the Clean Shipping, and the Environmental Ship Index (ESI).

65. Noise management

Related strategies: 10, 66, 67, 68, 69, 110

Implement a noise management plan to minimise noise impacts on and around the port. Noise pollution is the current top environmental priority in the European port sector, and is a particular issue for those ports in close proximity to residential areas. Apply a noise zoning system when planning the location of activities within the port area.

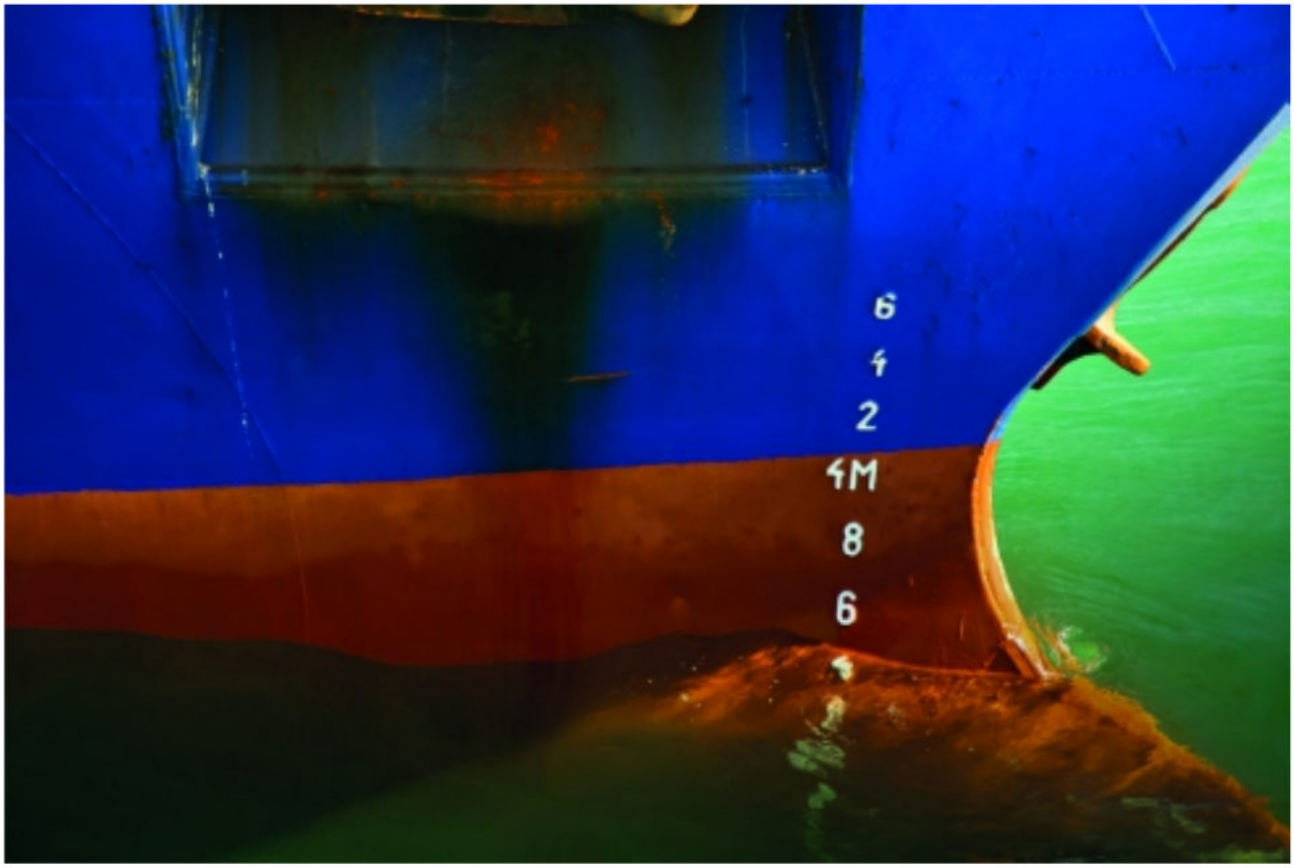

Photo: Marthinus Retief

66. Noise monitoring

Related strategies: 14, 65, 67, 68

Provide continuous monitoring of noise levels of port operations to determine the origin of significant sources of noise, the extent of noise nuisance on surrounding areas, and effectiveness of remedial actions. Ensure that noise exposure levels in surrounding residential areas are within acceptable limits, and establish a system for managing noise complaints.

67. Noise reduction measures

Related strategies: 1, 25, 65, 69

Aim to reduce noise associated with port operational activities (e.g. machinery), and shoreside traffic associated with the cruise port. Provide incentives (reduced fees or favourable mooring locations) for cruise ships to reduce noise emissions when in port, through use of onshore power supplies or investment in silent technologies.

68. Preventing noise propagation

Related strategies: 10, 65, 66, 67

Apply techniques to prevent the propagation of noise resulting from port operations. Potential strategies include noise barriers at port boundaries, buffer zones, or assistance with the installation of noise insulation in residential areas.

Sources of further information – air quality

- International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, International Maritime Organization: http://www.imo.org
- Prevention of Air Pollution from Ships. MEPC 58/ INF.6, IMO Marine Environment Protection Committee, 2008: http://www.imo.org/
- The Montreal Protocol on Substances that Deplete the Ozone Layer, UNEP, 1997: http://ozone.unep.org
- Air Pollution and Greenhouse Gas Emissions from Ocean-going Ships, The International Council on Clean Transportation, 2007: www.theicct.org
- Council Directive 1999/ 30/ EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air, Council of the European Union, 1999
- Council directive 1999/ 32/ EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/ 12/ EEC, Council of the European Union,1999
- Directive 2001/ 81/ EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants, European Parliament and Council of the European Union, 2001
- Directive 2005/ 33/ EC of the European Parliament and of the Council of 6 July 2005 amending Directive 1999/ 32/ EC relating to the sulphur content of marine fuels, European Parliament and Council of the European Union, 2005
- Directive 2008/ 50/ EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe, European Parliament and Council of the European Union, 2008
- Air quality and Greenhouse Gas Tool Box, International Association of Ports and Harbors / World Ports Climate Initiative, 2009
- Evaluation of the Feasibility of Alternative Market-Based Mechanisms To Promote Low-Emission Shipping In European Union Sea Areas, European Commission, 2004
- Market-based instruments for NOx abatement in the Baltic Sea, Air Pollution & Climate Secretariat / European Environmental Bureau / European Federation for Transport and Environment, 2009
- Floating Smokestacks - A call for action to clean up marine shipping pollution, Environmental Defense Fund, 2008
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- Prevention of Air Pollution from Ships - Second IMO GHG Study, International Maritime Organization, 2009
- Tourist facilities in ports: Growth opportunities for the European maritime economy, European Commission, 2009
- Clean Shipping Index: http://www.cleanshippingproject.se
- The Natural Choice - Environmental innovations for sustainable shipping: Liquefied Natural Gas provided in the Port of Gothenburg, Port of Gothenburg, 2012
- LNG in Baltic Sea Ports project, Baltic Ports Organisation: http://www.lnginbalticseaports.com/
- LNG Infrastructure for Filling Stations, Danish Maritime Authority, http://www.dma.dk/
- World Ports Climate Initiative - LNG-Fueled Vessels: http://wpci.iaphworldports.org/project-in-progress/lng-fueled-vessels.html
- Guideline on the NOx tax, Norwegian Maritime Directorate, 2008: http://www.sjofartsdir.no/
- Port of Gothenburg – Liquefied Natural Gas and Biogas: http://www.portofgothenburg.com/About-the-port/Development-projects/Liquefied-Natural-Gas-and-biogas/
- Clean Ports USA: Navigating Toward Cleaner Air, United States Environmental Protection Agency, 2005

Sources of further information – greenhouse gases

- World Ports Climate Initiative http://wpci.iaphworldports.org/
- Environmental Ship Index, WPCI, http://www.wpci-esi.org/Public/Home
- ISO 14064-1:2006 Greenhouse gases, International Standards Organisation, 2006
- Pathways to low carbon shipping – Abatement potential towards 2030, Det Norske Veritas, 2009
- Bunker fuels and the Kyoto Protocol: How ICAO and the IMO failed the climate change test, European Federation for Transport and Environment, 2009
- Greenhouse Gas Emissions Reduction Potential from International Shipping, Organization for Economic Co-operation and Development / International Transport Forum, 2009
- Marine Shipping Emissions Mitigation, Pew Center on Global Climate Change, 2010
- Shipping Impacts On Climate: A Source With Solutions, Oceana, 2008
- The Liner Shipping Industry and Carbon Emissions Policy, World Shipping Council, 2009

Sources of further information – noise

- Directive 2002/ 49/ EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise, European Parliament and Council of the European Union, 2002
- Directive 2000/ 14/ EC of the European Parliament and of the Council of 8 May 2000, on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors, European Parliament and Council of the European Union, 2000
- The NoMEPorts (Noise Management in European Ports) project: http://nomeports.ecoports.com
- Guidelines for Community Noise, World Health Organisation, 1999
- ISO 1996-1:2003 Acoustics, description, measurement and assessment of environmental noise, International Standards Organisation, 1996
- Good Practice Guide on Port Noise Mapping and Management, NoMEPorts Project, 2008

Photo: Linda Faulkner

Environmental – Energy

69. Onshore power supply

Related strategies: 1, 21, 57, 60, 67, 71

Investigate the feasibility of providing onshore power supply (OPS) facilities for cruise ships. By using an onshore power supply (sometimes referred to as 'cold ironing'), ships are able to shut down their main and auxiliary engines at berth, minimising noise, vibrations and air emissions in port. In countries with a relatively clean energy mix based on renewable sources, shore-side power also has the potential to reduce greenhouse gas emissions.

At present, key challenges in the implementation of OPS are transforming shore-side frequency electricity (50Hz in Europe) to the frequency used by vessels (often 60Hz), providing a high voltage electricity supply at the quay, and establishing standardisation of OPS systems so that all ships and ports can be retrofitted identically. Investment costs for the required infrastructure at port and on existing ships are high, although they may reduce as OPS becomes more common. In ports where cruise visits are seasonal and infrequent, OPS may not be a cost effective option at present. One option being pursued by some cruise lines is to prepare new-build ships for retrofitting with shoreside power supplies, and some ports are also preparing quays with the necessary space and infrastructure for possible future installation of OPS facilities.

70. Heat exchangers

Related strategies: 60, 112

Install reversible water source heat pumps, using sea water as a heat sink to dissipate the excess heat from port buildings and facilities, and extracting heat from the sea to provide heating during the winter. This can significantly reduce the energy required for heating and cooling (many systems have a coefficient of performance which delivers 5 times the output energy to the input energy consumption). However, it should be ensured that there will not be negative impacts on aquatic ecology due to localised changes in sea water temperature.

Photo: Rebecca Scantlebury

71. Renewable energy production

Related strategies:

60

114

Generate renewable energy on-site or purchase electricity generated from renewables. Options include the installation of photovoltaic solar panels on roofs, wind turbines, tidal or wave generators, combined heat and power plants, and the generation of electricity from biogas from collected compostable materials and wastewater. Lifecycle costs and payback periods should be investigated to determine the most appropriate option.

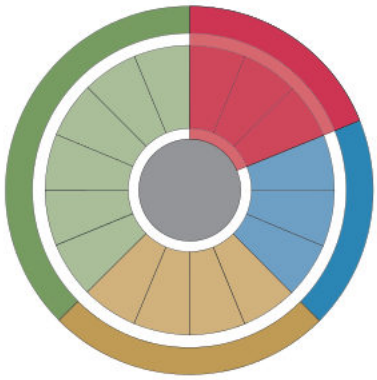
Sources of further information

- Onshore Power Supply, International Association of Ports and Harbors / World Ports Climate Initiative, www.onshorepowersupply.org
- Shore-side electricity for ships in ports. Case studies with estimates of internal and external costs, prepared for the North Sea Commission. MariTerm AB, 2004, www.mariterm.se
- Preconditions for connecting ships to Onshore Power Supply in the Port of Gothenburg, Göteborgs Hamn, 2012
- Tourist facilities in ports: Growth opportunities for the European maritime economy, European Commission, 2009

Photo: Hamburg Cruise Center e.V.

TERMINAL BUILDINGS

When considering the sustainability of cruise ports, it is also important to take the impacts of cruise terminal buildings into account. A different set of impacts and strategies are associated with buildings than with other port operations. The following section provides a summary of potential strategies for improving the sustainability of these buildings.



Economic – Financial Impacts

72. Lifecycle costs

Related strategies:

73	91	102
80	92	111
82	95	112
90	96	113

Carry out life cycle cost analyses when determining the most effective solutions in the planning and design of terminal buildings. In many cases more sustainable options may result in a slightly higher capital cost, but can deliver considerable financial savings during the operational lifetime of the building (for example reducing consumption of energy or water, or reducing production of wastes). Some solutions may also reduce capital costs, such as increasing the efficiency of material use and ensuring a smooth path to planning acceptance and regulatory compliance. Other initiatives may result in an improved image, or greater productivity and operational efficiency, although these can be harder to quantify. All of these impacts should be considered when weighing up decisions.

Economic – Employment

73. Employee health and productivity

Related strategies:

81	94
85	106
93	110

Design, construct, and maintain the terminal building in a way that ensures the provision of healthy, pleasant internal environments for employees and visitors. Poor quality indoor environmental conditions can result in 'sick building syndrome', which decreases productivity and increases absenteeism, and can also lead to greater employee turnover. Many of the other issues in this section affect the internal environment, such as lighting, internal air quality, and material selection.

Economic □ Reputation

74. Terminal buildings as exemplars

Use the terminal buildings as an exemplar of the port's sustainability. The cruise terminal is a key interface for cruise tourists visiting the destination. By creating a building with a clear sustainability focus, through design features and clearly visible information, the port can raise awareness of its commitment to sustainable development.

Related strategies:

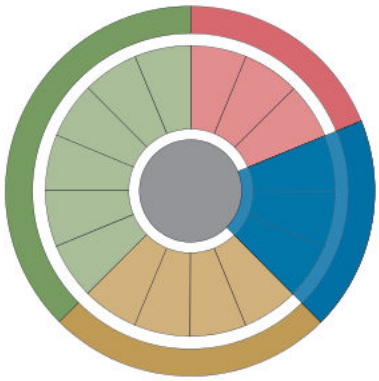
5 75
19 78
20

75. Environmental certification schemes

Obtain environmental certification for the terminal building. Environmental certifications schemes address a wide range of sustainability issues, and can be used to help ensure that many relevant issues have been addressed in the design and construction of a terminal building. They are also useful tools in communicating and marketing the sustainability of the terminal to interested stakeholders. The most common schemes are LEED (developed in the US), and BREEAM (developed in the UK), both of which have internationally applicable schemes. A range of other national approaches exist which may also be appropriate.

Related strategies:

74



Technical – Management

76. Building user guide

Provide a guide for staff at the terminal building and other regular occupants, highlighting relevant features of the building fabric and systems and enabling them to understand how to maintain and operate the building to achieve the optimum environmental performance and cost savings.

Related strategies:

73 98 106
77 101 111
81

77. Building Management Systems

Install a Building Management System (BMS) to manage and monitor the building's mechanical and electrical equipment such as heating, ventilation, lighting, and electrical systems, ensuring optimum internal environmental conditions.

Related strategies:

14 106
73 111

Technical – Supply Chain

78. Sustainable design and construction guidelines

Produce guidelines for designers and contractors involved in the construction of terminal buildings, including all sustainability requirements relating to the building design and site construction activities. Establish regular communication with the project team to ascertain that the requirements in the guidelines are met, and monitor site activities and impacts to ensure compliance during construction. Areas to cover in the guidelines are likely to be similar to those included in this section of the best practice guide.

Related strategies:

72–115

79. Tenant requirements

Establish a leasing policy including requirements for all new leases on the premises (where applicable) to comply with relevant sustainability requirements associated with the impacts of their operations.

Related strategies:

12 89 106
74 98 111
86 101 113
87 102

Technical Quality

80. Designing for robustness

Specify durable materials, maximising the expected lifespan of materials used and minimising operational maintenance requirements.

Related strategies:

72
93

81. Fitness for purpose

Ensure that the size of the terminal building and facilities provided within it meet the needs of the cruise lines expected to visit the port. The extent of facilities will vary depending on whether the terminal is for a transit or turnaround port, but are likely to include arrival and departure halls, toilets, and at least some form of shop.

Related strategies:

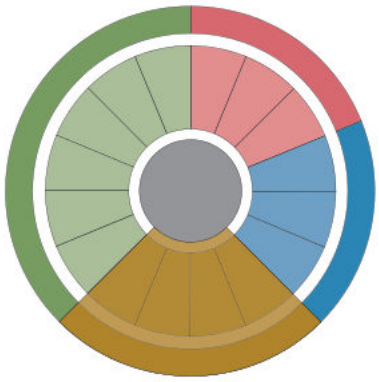
19
135

82. Flexibility

Ensure that the terminal building is flexible to meet the differing needs of cruise lines. In addition, given the seasonality of the cruise industry in the region, it may be appropriate to make the building flexible for different uses during the off-season (such as conference rooms or a venue for events). This should include consideration of structural flexibility so that the layout can easily be adapted for future needs.

Related strategies:

72
120



Social Travel

83. Cyclist facilities

Provide facilities to encourage cycling by employees and visitors. For staff this must including secure bicycle storage, showers and changing facilities. Cycling by cruise tourists can also be encouraged at suitable destinations by provision of rental bicycles.

Related strategies:

23

84

152

84. Parking provision

Limit the number of car parking spaces available to encourage the use of public transport and other more sustainable means of travel. Implement a rideshare scheme for employees, supporting the use of pool cars.

Related strategies:

23

24

Social Wellbeing

85. Optimise natural daylight

Optimise lighting within the building, maximising access to natural daylighting for occupants and providing views outside. Provide occupant control to minimise glare and ensure that lighting levels meet user needs.

Related strategies:

73

112

113

Social □Collaboration

86. Stakeholder engagement

Consult stakeholders throughout the design and construction of the buildings. Relevant groups are likely to include cruise lines, other end users (e.g. staff and tenants), local authorities, and potentially (depending on the location of the building) local communities. Ensure that stakeholder concerns are responded to and are taken into account during the design process.

Related strategies:

9
10
32
79

Social □Culture

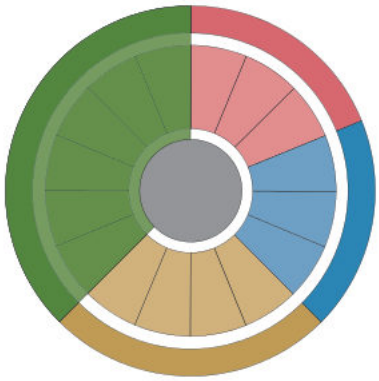
87. Protecting and emphasizing port heritage features

Identify any heritage features which may be affected by the building's construction and operations, and ensure that they are protected. Where appropriate, they may also be emphasised and incorporated into the new development.

Related strategies:

20
33
159

Photo: Cecilia Rygare



Environmental – Land Use and Soils

88. Maintaining soil quality

Related strategies: 36, 48, 91, 92

Save existing topsoil and subsoil (where of suitable quality) and incorporate it into the new development. Take care to ensure that soil used is not contaminated. In addition to preserving higher quality soils, this can result in cost savings by reducing the need to remove waste soils and reducing the amount of topsoil that needs to be purchased for landscaping.

89. Non-toxic landscaping maintenance

Related strategies: 48, 88

Avoid introducing toxins into ecosystems, by minimising the use of weed and pest control measures incorporating hazardous chemicals.

90. Efficient land use

Related strategies: 37, 39, 95

Make the best possible use of existing land resources, and select contaminated or derelict sites for redevelopment in preference to use of more valuable land.

Environmental – Resources and Waste

91. Construction waste management

Related strategies: 88, 92, 94, 96

Implement a construction waste management plan, to minimise and monitor the generation of waste on site. Work with contractors and suppliers to minimise the amount of packaging required for materials. Reuse and recycle materials such as timber, concrete, bricks and aluminium wherever feasible.

92. Minimise use of materials

Set targets for reduction in the quantity of new materials used in the construction of the building, and use salvaged materials or those with recycled content where feasible. Use prefabricated materials and standard sizes to minimise wastage.

Related strategies: 72, 91, 95

93. Sustainable materials in construction

Undertake a Life Cycle Assessment (LCA) of potential building materials and select environmentally preferable materials where possible, such as timber from sustainably managed forests, steel with a high recycled content, concrete incorporating recycled aggregates and cement replacements, and plastics which have low embodied impacts.

Related strategies: 18, 72, 80, 94, 95, 97

94. Hazardous Materials

Make sure that materials in the construction and fit-out of the building do not contain hazardous substances. Pay particular attention to paint, plastic materials, cables and all sorts of electronics. Check existing buildings for asbestos and remove it safely if found. Ensure the safe storage and handling of any hazardous materials that are used.

Related strategies: 73, 91

95. Reuse of structures and materials

Where existing buildings are located on the site, make use of the existing materials such as façade materials or structural components wherever practical.

Related strategies: 72, 90, 92

96. Design for deconstruction

Design the building so that it can easily be dismantled and its components reused or recycled at the end of its life.

Related strategies: 72, 80, 82

97. Local sourcing of materials

Specify and source materials and components which have been manufactured locally, minimising transportation and associated embodied impacts whilst benefiting the local economy.

Related strategies: 18, 93, 127, 144

98. Facilitate recycling

Related strategies: 40, 41, 43, 45, 168, 169

Provide a storage area for the separation, collection and recycling of waste, and appropriate waste bins within the terminal to encourage users to separate recyclable waste (typically this might include paper, cardboard, glass, plastic and cans, and compostable waste). Monitor the quantities of waste generated and recycled

Environmental – Biodiversity

99. Native landscaping

Related strategies: 20, 48, 100, 102

Use local native plant species for landscaping, and Incorporate existing vegetation into the development. This will ensure that planting is adapted to the local climate, minimising consumption of potable water for irrigation and other maintenance requirements. Ensure that any harmful or invasive plant species are removed.

100. Green roofs

Related strategies: 48, 50, 99, 103

Make use of green roofs where appropriate. These increase the surface area of green space on the site (assuming the site was not previously green), provide insulation, and assist in the retention of stormwater. They also provide a highly visible indication of the building's sustainability.

Environmental – Water

101. Manage and monitor water use

Related strategies: 14, 102

Develop and implement a water management plan, setting targets for the reduction of water consumption in the terminal building. Install water metering systems, including sub-meters for major water uses. Electronic metering systems can compare consumption against benchmarks for the building and notify staff of discrepancies, facilitating rapid detection of leaks.

Photo: Clarke Robertson

102. Reducing water consumption

Related strategies: 72, 103, 101

Install water efficient fixtures and fittings. These could include dual flush low volume toilet cisterns, infrared or waterless urinals, aerating wash basin taps, flow restrictors, or water efficient dishwashers and washing machines.

103. Rainwater harvesting

Related strategies: 50, 102, 100

Install a rainwater harvesting system for collecting rainwater from the terminal building roof and reusing it – reducing potable water consumption. Possible uses may include toilet flushing, irrigation, or cleaning pipelines.

104. On site treatment

Related strategies: 56

Install a system for collection, treatment and reuse of black- and grey-water on the site. This could include treatment of wastewater on the wider port site, resulting in economies of scale.

Environmental – Atmosphere

105. Construction air quality

Related strategies: 10, 57

Implement mitigation measures to limit the generation of air pollutants during construction. In particular, take appropriate steps to minimise the generation of dust and odours, as well as fumes from construction machinery, and ensure that these do not impact on sensitive receptors (such as local residents).

106. Indoor air quality management

Related strategies: 14, 57, 58, 73, 77, 107, 108

Implement measures to ensure good air quality inside the terminal building. These might include increasing intake rates for outside air, ensuring that rooms containing sources of indoor air pollution are fitted with exhaust air vents, and ensuring that air intakes are located sufficiently far from sources of external air pollution. A monitoring system should be installed measuring key indoor air quality parameters, such as temperature, humidity, carbon dioxide, and carbon monoxide. Living plants can also help to improve indoor air quality, as well as providing visually pleasing features for occupants.

107. Natural ventilation

Related strategies: 57, 106, 112

Design the building to be naturally ventilated where appropriate. This involves using temperature or pressure differences to drive ventilation through the building and regulate internal air quality, as opposed to the use of mechanical ventilation systems. A range of options exist, including wind driven ventilation (such as 'wind-catchers' on the roof of the building), passive stack ventilation which relies on the tendency of warm air to rise, and occupant- or computer-controlled openings in facades and roofs. When considering the feasibility of natural ventilation systems, it is important to ensure that the external air quality is adequate to ensure a healthy indoor environment.

108. Low emitting materials

Related strategies: 73, 93, 106

Specify materials in the construction and fit-out of the building with low emissions of Volatile Organic Compounds (VOCs). Pay particular attention when specifying sealants, adhesives, paints, carpets, and composite wood products.

109. Refrigerant management

Related strategies: 60

Specify refrigerants with a minimum Global Warming Potential (GWP) and zero Ozone Depletion Potential (ODP). Install a leak detection system for refrigerants and vapours in high risk areas.

110. Optimum acoustic environment

Related strategies: 73

Design spaces in the building to ensure good acoustic comfort for all users, minimising sound disturbance and preventing ear damage.

Environmental – Energy

111. Energy management, metering and audits

Related strategies: 14, 72, 77, 112, 113

Implement an energy plan for the management and minimisation of energy consumption for the building. Install an energy metering system to enable monitoring of energy consumption, with sub-metering for separate usage types, particularly high energy uses. Monitor and analyse resultant data to identify trends and seasonality issues, and report results to relevant stakeholders. Ensure comprehensive commissioning of building services systems to ensure optimum performance.

112. Efficient building fabric and services

Related strategies: 72, 77, 93, 111, 115

Design the building to ensure that heat transfer with the external environment is minimised, thorough high levels of insulation, energy efficient glazing, and an airtight construction. Aim for the passive house standard (avoiding the need for installation of any heating or cooling systems) where feasible. Ensure that building services systems are highly energy efficient, and install heat recovery systems to minimise heat losses through ventilation.

113. Energy efficient lighting and equipment

Related strategies: 72, 85, 111

Install energy efficient appliances (at least A-rated) and light fittings. Maximise the use of natural daylight, minimising energy requirements from artificial lighting. Enable zoned occupant control of lighting levels, with variable lighting controls (e.g. dimmers), and install occupancy sensors and automatic timers where appropriate.

114. On site renewable generation

Related strategies:

71

72

111

Investigate the feasibility of integrating renewable energy technologies in the building design. This could include photovoltaics, solar hot water panels, combined heat and power systems, or micro wind turbines. Consider the cost benefit of installing these systems as part of a wider consideration of renewable energy options at the cruise port.

115. Passive and microclimate design

Related strategies:

90

111

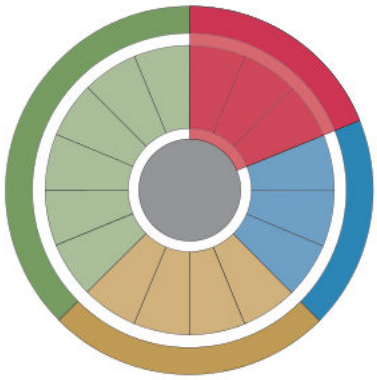
112

Consider the microclimate around the building during the design process, and design the location, form, orientation and layout of the building to optimise the potential for natural daylighting and passive gains. Make use of thermal mass (e.g. exposed concrete) in combination with passive solar design and night time cooling strategies to help regulate temperatures within the building – maximising occupant comfort while minimising energy use.

Photo: Agur Concellane/CDH

DESTINATIONS

Tourism destinations depend on natural environment quality and cultural distinctiveness to ensure their continuing attractiveness. The tourist industry can have significant positive economic and social impacts, and can even help to contribute to environmental protection and enhancement. However, in order to ensure the on-going sustainability of a destination it essential to ensure that both positive and negative impacts are managed effectively to achieve the most beneficial results for all involved.



Economic – Financial Impacts

116. Home ports vs. ports of call

Related strategies:

6	116
19	129
32	152

Determine what sort of cruise destination the region should aim to be and ensure that attractions and facilities exist to meet associated requirements. There is significant variation in the economic impact of cruise tourism based on whether the port is a homeport (where cruises begin and end) or a port of call. Passengers generally spend more than double, and in some surveys up to 5 times more, at a homeport than they spend at a port of call. However, not all destinations have the potential to become a home port, and significant investments are often required to develop the necessary infrastructure. Home ports are generally located in large cities with good accessibility to the port, particularly from the airport, and a wide range of dedicated port facilities for cruise ships (cruise berths, large areas for coach parking, more extensive terminals etc.). Where the destination has a high level of tourism attractiveness, it may be more viable to aim to purely be a port of call. In these cases, the key criteria are high accessibility to tourist attractions and excellent tourist facilities at the port and in the hinterland. Destinations should choose carefully which option is most viable and focus investments accordingly.

117. Maximising local economic benefits

Related strategies:

4	120	127
116	121	136
118	122	142
119	126	144

Ensure the availability of a diverse mix of local goods and services for cruise ships and their passengers. Cruise tourism can generate a wide range of direct and indirect economic benefits. Ships pay port fees, purchase fuel, supplies and fresh water, and procure services such as tugboats and waste disposal. Passengers visit attractions, restaurants, and shops, and buy food, travel and souvenirs. Many cruise passengers that go ashore purchase shore excursions. Purchased goods and services lead to wider economic benefits in other sectors, such as agriculture and transportation. Providing a wide range of services ensures that passengers' needs are met in a way that benefits the local economy. Furthermore, direct local economic benefits can be maximised by promoting the use of local suppliers.

118. Economic monitoring

Related strategies: 117

Monitor the direct and indirect economic impacts of tourism on the destination's economy. Make the results publicly available, helping to raise local awareness of the benefits of the cruise tourism industry. A useful tool in this process may be Tourism Satellite Accounting (TSA), which facilitates the gathering and analysis of data on both the direct and indirect impacts of tourism expenditure.

119. Willingness to pay for sustainable holidays

Related strategies: 117, 133, 134, 136

Pursue sustainability initiatives as a means of securing additional revenues. In recent years a growing number of consumers have indicated an interest in the sustainability of tourist activities that they purchase. Some research suggests that more than a third of consumers in the UK or Germany would be willing to pay up to 5 % more for a holiday with sustainability credentials. Although conflicting research exists, being seen to be sustainable can often help to increase revenues by securing the loyalty of current customers and attracting new ones, resulting in increased market share.

120. Seasonal variations

Related strategies: 117, 129

Take steps to manage and mitigate the impacts of seasonal variations in tourism. Develop attractions which may appeal to tourists during the off-season period, and find alternative uses for facilities during this time. Encourage a full range of attractions and services, so as to appeal to the entire demographic spectrum of potential tourists and so maximise economic resiliency over both the short and long term.

121. Cost savings

Related strategies: 166, 172, 178, 185

Identify 'quick wins' which will deliver sustainability benefits whilst reducing costs with relatively low initial investment costs, and invest resultant savings in further initiatives. Many sustainability strategies can help to lower costs and increase operational efficiency. Examples include initiatives which reduce purchasing of materials (paper and other supplies), minimise waste generation, reduce consumption of energy and water, or avoid non-compliance fines.

122. Donations and investments to local community

Related strategies: 117, 157, 161, 175

Support charitable initiatives and investments in community development, cultural heritage, and biodiversity conservation. Support may be provided in the form of resources, education, training, food donations, financial assistance, or in-kind contributions (e.g. staff time). Visitors may also be encouraged to volunteer or contribute to certain initiatives.

Sources of further information

- Green Economy in a Blue World, UNEP, 2012
- Integrating Sustainability into Business - A Management Guide for Responsible Tour Operations, UNEP / Tour Operators Initiative, 2005
- Tourist facilities in ports: Growth opportunities for the European maritime economy, European Commission, 2009
- Green Globe Standard Criteria and Indicators: http://greenglobe.com
- Global Sustainable Tourism Criteria for Destinations: http://www.gstcouncil.org/

Economic – Employment

123. Employment policies

Related strategies: 124

Implement employment policies which ensure the health, welfare, rights, and benefits of employees. Policies should include protection of human rights (e.g. prevention of forced labour or child labour), non-discrimination, protection from harassment, safe and healthy working environments, freedom of association and collective bargaining, fair wages and benefits, reasonable work hours, security of employment, and compliance with relevant national and international legislation as well as International Labour Organization standards. Employee, motivation, engagement, and recognition are also common themes. Policies should be applied in relation to both direct employment by the organisation and indirect employment (through suppliers).

Photo: Lars Forsstedt/Bildarkivet.se

124. Staff motivation and engagement

Implement measures to attract and retain high-quality staff. Motivated employees with good working conditions will deliver more efficient, higher-quality services for customers. Staff motivation can be increased by implementing good labour practices and ensuring regular communication and participation in decision-making. Sustainability initiatives can also help to attract talented employees and drive innovation.

Related strategies:

123

125

135

125. Staff sustainability awareness

Ensure that all members of staff are aware of relevant sustainability concepts, issues and practices. Information should be provided concerning the organisation's sustainability policy and relevant procedures. Possible means of raising awareness include training workshops, group discussions, briefings and feedback materials. Periodic training should focus on employees' role in the management of environmental, sociocultural, health, and safety practices. Front desk staff should be able to give an account of current sustainability initiatives.

Related strategies:

133 137

135 158

126. Local labour

Recruit from local labour sources when additional staff and/ or volunteers are needed. In addition, favour service providers that employ good quality local labour. This helps to maximise community economic benefit and foster community involvement and integration with the business.

Related strategies:

117

123

137

127. Local businesses

Involve and support local entrepreneurs and the development of small and medium-sized enterprises (SMEs). Offer the means for local small entrepreneurs to develop and sell sustainable products and services that are based on the area's nature, history, and culture. Encourage the purchase of local crafts, goods and services. This can help to diversify the tourism product and strengthen local distinctiveness, while also increasing local economic benefits and engendering a sense of pride in local cultural heritage.

Related strategies:

117 142

126 144

141

Sources of further information

- International Labour Organization's Declaration of Fundamental Principles and Rights at Work: www.ilo.org/public/english/standards/norm/index.htm
- Integrating Sustainability into Business: A management guide for responsible tour operations, UNEP / Tour Operators Initiative, 2005
- Integrating Sustainability into Business: An implementation guide for responsible tourism coordinators, UNEP / Tour Operators Initiative, 2005
- Green Globe Standard Criteria and Indicators: http://greenglobe.com
- Global Sustainable Tourism Criteria for Destinations: http://www.gstcouncil.org/
- Global Sustainable Tourism Criteria for Hotels and Tour Operators: http://www.gstcouncil.org/
- The Green Key: International Baseline Criteria for Attractions: http://www.green-key.org/
- Visit Scotland Going Green Checklist: http://www.greentourism.org.uk/going-green-login.html

Economic Reputation

128. Develop a sense of place

Related strategies:

129	147	161
133	159	162
144		

Create a unique and authentic experience for visitors. Develop and improve the character of the area in ways that reflect and differentiate its natural and cultural heritage. Emphasize the unique attractions, culture, heritage and authenticity offered by destinations within the NSR, and encourage growth in tourism market segments most likely to appreciate, respect, and spread awareness about the distinctive assets of the region (e.g. theme cruises).

129. Protection and enhancement of destination appeal

Related strategies:

128	159	173
135	161	175
136	163	
147	164	

Implement measures to ensure that the tourism potential of the destination is protected. The attractiveness of a destination is closely linked to factors such as aesthetic appeal, natural habitats, heritage sites, and local cultural assets. Prevent degradation by keeping tourist numbers within maximum acceptable limits - overcrowding can cause damage and reduces the attractiveness of a destination. Use persuasion, incentives, and legal enforcement as needed.

130. Quality of shore excursions

Develop a diverse range of high quality shore excursion options which offer unusual, unique, innovative, or creative features. Focus on tours which capture the imagination and provide tourists with a memorable experience. These are likely to increase tourism satisfaction and hence increase repeat business from cruise lines.

Related strategies:

135 160
146 162

131. Certification of destinations

Achieve third part sustainability certification of attractions at the destination, in line with a recognised standard. A wide range of tourism certification schemes exist (some of the most common schemes are listed in the references). Some cruise lines have also developed specific certification schemes to verify the sustainability of shore excursions. An appropriate certification system should be selected or developed to fit the political, socio-economic, environmental, and sectoral characteristics of the region.

Related strategies:

133

132. Building certification schemes

Aim for buildings at destination attractions to be certified in accordance with an internationally recognized certification scheme. The most common international rating schemes are BREEAM and LEED, although national schemes may also be appropriate in some circumstances. These can help to demonstrate the sustainability credentials of a building, which is often a major visible component of the attraction itself. A suitably high rating should be sought on all new construction projects, and certification should also be sought for existing buildings where appropriate.

Related strategies:

75
133

133. Developing reputation as a sustainable destination

Develop and implement a comprehensive communications strategy to inform visitors of sustainability policies, goals, initiatives, and performance. A reputation for being sustainable can add value to the brand of the destination or attraction, strengthening its market position. Effective communications are likely to include sustainability reports, newsletters, visible material on site, and publication of information on a website.

Related strategies:

5 132 155
74 134 158
119 136
125 137

134. Responsible marketing

Ensure that all promotional materials are authentic, accurate and complete and do not promise more than can be delivered by the business. Accurate information help tourists to choose the most appropriate destination for their needs and interests, and improves customer satisfaction by ensuring that expectations can be met.

Related strategies:

5	133
6	135
129	155

135. Visitor satisfaction and feedback

Implement a system to monitor and, if necessary, take corrective action to improve tourist satisfaction. The customer is the central focus of the tourism experience, and cruise lines put large emphasis on satisfied cruise passengers. As much feedback as possible on visitor satisfaction should be sought in order to maintain and improve positive experiences and ensure continued cruise visits to the destination.

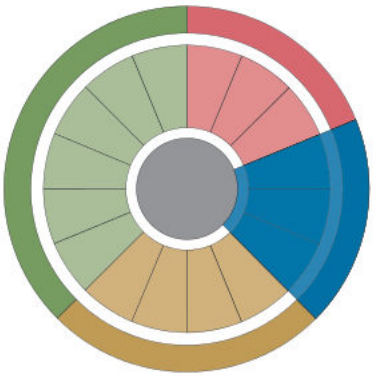
Related strategies:

19	128	148
20	129	154
81	130	156
119	134	158
124	146	160

Sources of further information

- Decision Criteria for Cruise Port Selection in the North Sea Region, Cruise Gateway North Sea, September 2012
- Integrating Sustainability into Business - A Management Guide for Responsible Tour Operations, UNEP / Tour Operators Initiative, 2005
- Supply Chain Engagement for Tour Operators: Three Steps Toward Sustainability, Tour Operators' Initiative for Sustainable Tourism Development, 2004
- Voluntary Initiatives for Sustainable Tourism: Worldwide Inventory and Comparative Analysis of 104 Eco-labels, Awards And Self-commitments, World Tourism Organization (UNWTO), 2002
- Recommendations to governments for supporting and/ or establishing national certification systems for sustainable tourism, World Tourism Organization (UNWTO), 2003
- Visit 21 - the 21 key criteria for sustainable tourism certification: http://www.visit21.net/VISIT_key_criteria.html
- Marketing Sustainable Tourism Products, UNEP, 2004
- Improving tour operator performance: The role of corporate social responsibility and reporting, ABTA/ TOI/ Tearfund, 2003
- Ecolabels in the Tourism Industry, UNEP, 1998
- ISO20121:2012 standard for sustainable event management, International Standards Organization

- Accepted Practices Exchange (APEX): http://www.conventionindustry.org/standardspractices/apex.aspx
- BREEAM: http://www.breeam.org/
- Svensk Miljöbas Miljödiplom (in Swedish): http://svenskmiljobas.se/
- ECOTEL: http://www.ecotelhotels.com/
- Global Sustainable Tourism Criteria for Hotels and Tour Operators: http://www.gstcouncil.org/
- Green Globe 21: http://www.greenglobe21.com
- Green Globe Standard Criteria and Indicators: http://greenglobe.com
- LEED: http://www.usgbc.org/
- Nordic Swan: http://www.nordic-ecolabel.org/
- The Geotourism Charter, National Geographic Centre for Sustainable Destinations: http://travel.nationalgeographic.com/travel/sustainable/pdf/geotourism_charter_template.pdf
- The Green Key: International Baseline Criteria for Attractions: http://www.green-key.org/
- Visit Scotland Going Green Checklist: http://www.greentourism.org.uk/going-green-login.html
- Hållbarbesöksnäring – Sustainable tourism certification (in Swedish): www.hallbarbesoksnaring.com



Technical Management

136. Destination management plans

Develop, publish, and implement a long term strategy for the sustainable development of tourism in the destination city or region. Involve all relevant stakeholders in developing a common vision for tourism at the destination. The strategy should outline a coordinated approach for delivering sustainable tourism offerings which generate the maximum possible economic, environmental and social benefits for the destination.

Related strategies:

32	156
140	157
142	163

137. Sustainability management systems

Implement a sustainability management system to help to guide decision-making, management, and operations of the organisation in a sustainable manner. This should include: transparent, documented policies and procedures; identification of key impacts, legislative requirements, and risks; setting of goals and objectives; and an action plan for improvement. Progress should be monitored through a set of clear indicators, and communicated to stakeholders through appropriate channels.

Related strategies:

11	138
118	139
133	140

138. Environmental Assessment

Conduct an environmental assessment of any significant activities related to cruise ship tourism.

Ideally this should take the form of a Strategic Environmental Assessment (SEA) instead of a more limited site specific Environmental Impact Assessments (EIA). This will help to determine the likely impacts and risks associated with tourism activities, and can be used to compare the consequences of different scenarios.

Related strategies:

163	173	183
164	174	185
165	177	
166	178	

139. Social Impact Assessment

Related strategies:

117

157

Conduct a Social Impact Assessment (SIA) to evaluate the socio-cultural impacts of tourism activities. This involves the use of surveys to measures residents' perceptions of the impacts of tourism at the destination, supplemented by qualitative assessments.

140. Monitoring impacts

Related strategies:

118 166 181

137 176 183

134 179 185

Implement ongoing monitoring and transparent reporting of the impacts of tourism activities and facilities, based on an appropriate set of indicators. Ensure that monitoring is frequent enough to detect problems at an early stage, so that corrective action can be taken if needed. Indicators should be measurable and easy to understand by the different groups of stakeholders involved.

Sources of further information

- Supply Chain Engagement for Tour Operators: Three Steps Toward Sustainability, Tour Operators' Initiative for Sustainable Tourism Development, 2004
- Integrating Sustainability into Business - A Management Guide for Responsible Tour Operations, UNEP / Tour Operators Initiative, 2005
- Indicators of Sustainable Development for Tourism Destinations, (section 4.18 Cruise Ships and their Destinations), World Tourism Organization (UNWTO), 2004
- Managing Cruise Ship Impacts: Guidelines for Current and Potential Destination Communities, Tourisk Inc., 2006
- Indicators of Sustainable Development for Tourism Destinations – Cruise Ships and their Destinations

Technical □ Supply Chain

141. Sustainability purchasing policy and performance demands

Develop and implement a policy setting sustainability criteria to be used when selecting and monitoring the performance of suppliers. Policies could include bulk purchasing to minimise packaging waste, favouring environmentally friendly products such as sustainable building materials, recycled paper products, organic food, or renewable generated electricity, or procurement of fair trade goods and services. Incorporate sustainability clauses into contracts with suppliers, and create incentives for good performance (e.g. preferential contracting, promotional opportunities).

Related strategies:

142	166
143	172
144	189

142. Supply chain engagement

Discuss sustainability issues regularly with suppliers and encourage feedback. Inform suppliers about sustainability policies and objectives, and raise their awareness on sustainability issues. Consider inviting key suppliers to participate in the sustainability policy development process. Provide feedback on performance so they can learn where and how to make improvements, and provide technical support for sustainability actions, such as training, guidance, or involvement in group events for sharing best practice.

Related strategies:

127	141
137	143

143. Supply chain assessment and audits

Create assessment and monitoring procedures to evaluate supplier sustainability performance. Establish criteria and set achievable targets, based on standards set in contracts. Criteria could be either performance-based or process-based. Measure the current performance of suppliers to provide a baseline against which progress can be assessed, and establish priorities for action.

Related strategies:

137	141
140	142

144. Local sourcing

Procure local goods and services, and promote local crafts and provisioning of food and drink. This enhances visitor experience and local distinctiveness, while supporting the local economy and lowering costs and emissions associated with transportation.

Related strategies:

117	126
121	127

145. Eco-labels

Related strategies: 121, 141, 143, 172, 188

Make use of eco-labels (environmentally friendly certification of products) when setting requirements for procurement of relevant products such as appliances, laundry and cleaning products, food and materials. This can reduce costs associated with monitoring compliance with supply chain standards, as performance is assessed by an independent body.

Sources of further information

- Integrating Sustainability into Business - A Management Guide for Responsible Tour Operations, UNEP / Tour Operators Initiative, 2005
- Managing Cruise Ship Impacts: Guidelines for Current and Potential Destination Communities, Tourisk Inc., 2006
- Supply Chain Engagement for Tour Operators: Three Steps Toward Sustainability, Tour Operators' Initiative for Sustainable Tourism Development, 2004

Technical Quality

146. Quality management systems

Related strategies: 135, 137

Implement a quality management system certified to the ISO 9001 standard. This facilitates systematic control of activities to enhance customer satisfaction, ensures that customer needs and expectations and understood and met, and leads to an increase in the quality of service provided.

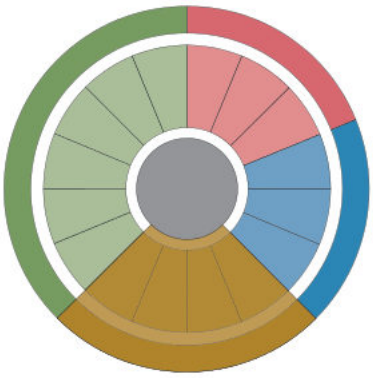
147. Aesthetics

Related strategies: 128, 129, 162, 163, 164

Maintain and enhance the aesthetic appeal of the destination, including both physical development and the natural environment. Ensure that visual impacts of facilities and infrastructure are minimised, and use locally appropriate tools and materials that minimise environmental impact while blending in to the local vernacular architectural style.

Sources of further information

- ISO 9001:2008 Quality Management Standard: http://www.iso.org/iso/home/standards/management-standards/iso_9000.htm



Social Travel

148. Capacity assessment

Related strategies: 19, 135, 149, 150, 152

Conduct a capacity assessment of the destination, based on an inventory of the key attractions, infrastructure and facilities where tourists are expected to visit. This should include consideration of available numbers of trained guides, police, translators, organizers, toilets, seats in restaurants, buses, taxis, and parking. Potential degradation of natural and cultural assets should also be considered. Implement measures to minimise stresses on the destination due to crowding.

149. Setting passenger limits

Related strategies: 22, 148

Where necessary, set a maximum limit on the number of cruise passengers accepted at the destination per day. This should be set on the basis of an assessment of the capacity of the destination (see previous strategy).

150. Cruise calendar

Related strategies: 148, 149

Ensure that sufficient information is available for cruise lines to avoid visiting destinations simultaneously to the extent that crowding will occur. This can be achieved through active communication of peak days, or the use of a 'cruise calendar' to provide a berthing schedule showing how many ships are in port on a specific day. This can ease the cruise lines' itinerary planning and can also help attractions and services at the destination to plan for busy periods.

151. Travel information

Related strategies: 24, 83, 152

Provide clear, relevant and up to date travel information to visitors, encouraging them to use more sustainable options. This could be published on a website or in marketing literature, distributed via cruise lines or at the port. Useful information might include public transport routes and times (particularly for key attractions) or information on local bike hire.

Photo: Oliver Pearce

152. Enabling sustainable transport

Related strategies:

24

151

182

Provide or improve sustainable transport infrastructure which links directly to the port and integrates with key attractions around the destination. This should include cycle paths (with accessible hireable bicycles) and footpaths as well as public transport infrastructure and services. Investigate the potential for ferries linking the cruise terminal to attractions.

Sources of further information

- Indicators of Sustainable Development for Tourism Destinations, (section 4.18 Cruise Ships and their Destinations), World Tourism Organization (UNWTO), 2004
- Managing Cruise Ship Impacts: Guidelines for Current and Potential Destination Communities, Tourisk Inc., 2006
- Cruise calendar, Cruise Norway website, http://www.cruise-norway.no/
- Decision Criteria for Cruise Port Selection in the North Sea Region, Cruise Gateway North Sea, September 2012

Social Wellbeing

153. Accessibility

Related strategies:

135

Ensure that all attractions and facilities meet accessibility standards for mobility impairment or other disabilities, ensuring that all cruise tourists can visit the destination without hindrance.

154. Visitor health, safety and security

Related strategies: 135

Implement a system to prevent and respond to tourism-related crime, safety, and health hazards. Ensure compliance with all relevant health and safety obligations, including national and international legislation and standards. Develop a crisis and emergency response plan to ensure that any threats to visitor safety and security are responded to effectively, and communicate this plan to cruise lines, tourists, and tourism-related enterprises.

Sources of further information

- Green Globe Standard Criteria and Indicators: http://greenglobe.com
- Global Sustainable Tourism Criteria for Destinations: http://www.gstcouncil.org/
- Accessibility for the Disabled: A Design Manual for a Barrier Free Environment, http://www.un.org/esa/socdev/enable/designm/

Social Collaboration

155. Collaboration with other destinations in the region

Related strategies: 6, 7, 116, 133

Work with other destinations in the region to develop a feasible and attractive tourism offering for cruise lines. Cruises are marketed as a package of several destinations and experiences. Cruise lines seek destinations within convenient distances of the departure port and other destination ports. Ports and destinations in the NSR should therefore collaborate as a region in developing and marketing cruise tourism.

156. Joined up services

Related strategies: 6, 32, 130, 142

Establish destination partnerships involving all of the key players in delivering a joined up cruise tourism service to cruise lines and their passengers. Partnerships should involve all relevant sectors, infrastructure providers, attractions, authorities, service companies, and suppliers of goods, working together to provide an excellent service to cruise lines and their guests. Such collaborative network can also be used as forums for exchange of information and ideas, helping to drive sustainable improvements for the destination as a whole.

157. Local community engagement

Related strategies: 10, 135, 139

Enable community stakeholders to participate in tourism-related planning and decision making. Maintain regular communication with local residents to enhance their understanding of tourism opportunities, tourism challenges, and the way in which sustainability issues are being addressed. Establish a complaints procedure for local residents to voice concerns and ensure responsive action is taken where needed. Develop feedback systems to ensure that local satisfaction and acceptance of cruise tourism is regularly monitored.

158. Tourist awareness of sustainability issues

Related strategies: 125, 129, 133, 152, 159, 160, 164, 166, 173, 178, 185

Raise tourist awareness of sustainability issues and encourage responsible behaviours. Information material must be visible and accessible. It could be included in printed materials (brochures, leaflets, information packs), or provided on websites. It could also be communicated by guides, through educational activities, at welcome meetings, or via lectures and other information provided on cruise ships prior to arrival at the destination. Relevant issues include: information about protected areas and their ecological importance; information about the history and culture of the destination; advice on reducing their environmental impacts (e.g. staying on footpaths, use of water and energy, appropriate waste management, littering); and respect for local cultural norms.

Sources of further information

- Integrated Technical Co-operation Programme, International Maritime Organization, 2012
- Green Globe Standard Criteria and Indicators: http://greenglobe.com
- Integrating Sustainability into Business - A Management Guide for Responsible Tour Operations, UNEP / Tour Operators Initiative, 2005
- The Green Key: International Baseline Criteria for Attractions: http://www.green-key.org/

Social Culture

159. Minimising damage to cultural heritage

Related strategies: 128, 129, 160, 161

Ensure protection of local historical, archaeological, cultural, and spiritually important sites. The NSR is a high content area with diverse and extensive history, heritage, culture, and traditions. Preservation of this heritage is essential to maintaining the tourism potential of destinations in the region. Actions to minimise damage to cultural heritage sites include keeping numbers of tourists and sizes of groups to within acceptable limits, ensuring codes of behaviour are followed for visits to culturally or historically sensitive sites, and encouraging contributions towards on-going preservation work.

160. Site interpretation

Related strategies: 158, 159

Provide information at cultural heritage sites, available in relevant languages, to facilitate interpretation of the local culture, customs, and heritage assets.

161. Contributions to heritage protection

Related strategies: 117, 122, 159

Encourage visitors to make financial contributions to heritage conservation projects. Although there is a risk of unmanaged tourism damaging destinations, tourism also has the power to generate funds that make conservation possible. Provide tourists with opportunities to proactively support conservation work through donations, sponsorship or membership. Heritage sites should demonstrate how donated money is used by reporting on progress with projects and publishing accounts.

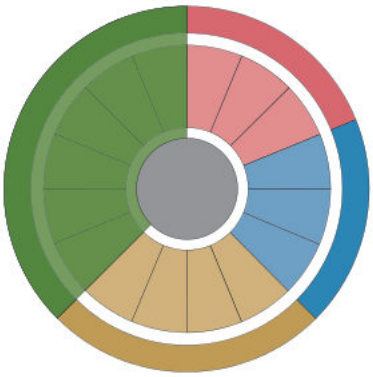
162. Local crafts and traditions

Related strategies: 128, 135, 159

Promote local crafts and traditional techniques, and incorporate elements of local art, architecture, or cultural heritage in the design and operations of attractions. Encourage active involvement of tourists in festivals or events that support local culture and identity.

Sources of further information

- Global Code of Ethics for Tourism, World Tourism Organization (UNWTO), 1999
- International Cultural Tourism Charter, International Council on Monuments and Sites (ICOMOS), 1999
- Sustainable Tourism and Cultural Heritage, World Bank 1999
- The Geotourism Charter, National Geographic Centre for Sustainable Destinations: http://travel.nationalgeographic.com/travel/sustainable/pdf/geotourism_charter_template.pdf
- Green Globe Standard Criteria and Indicators: http://greenglobe.com
- Global Sustainable Tourism Criteria for Destinations: http://www.gstcouncil.org/
- Visit Scotland Going Green Checklist: http://www.greentourism.org.uk/going-green-login.html



Environmental – Land Use and Soils

163. Land use planning and coastal zone management

Implement appropriate land use planning to anticipate development pressures, prevent undesired overdevelopment and degradation, and ensure that the diversity of natural and scenic environments in the region is retained. Prevent excessive conversion of natural coastlines and habitats to artificial built up areas. Apply Integrated Coastal Zone Management processes and techniques to develop an integrated plan for the protection and development of coastal ecosystems and resources.

Related strategies:

39 138 164
129 139 173
136 140

164. Avoiding landscape deterioration

Ensure that buildings, infrastructure, and facilities are designed and constructed to an appropriate scale for the surroundings and in a way that conserves key scenic and wild landscapes, minimising negative visual impacts.

Related strategies:

147 165
163

165. Light pollution

Ensure that all attractions and facilities minimise light pollution to the sky and surrounding areas, through appropriate design and use of lighting hardware.

Related strategies:

164 187
173

Sources of further information

- The VISIT initiative - Final core set of indicators
- Awards for Improving Coastal Environment: The example of the Blue Flag, Blue Flag / FEE / WTO, 2006
- Integrated Coastal Zone Management, European Commission website: http://ec.europa.eu/environment/iczm/home.htm

Photo: Hubert Umali

Environmental – Resources and Waste

166. Waste management

Develop and implement a comprehensive strategy to reduce waste to landfill resulting from tourist activities at the attraction / destination. Develop the waste management strategy in cooperation with responsible waste handle companies and local authorities, taking into account the capability of existing infrastructure for handling separate waste streams. Set quantitative goals to minimise waste generation and maximise the proportion that is reused or recycled. Conduct regular audits to identify and quantify waste streams, report the results, and implement measures to increase diversion rates.

Related strategies:

121 168
140 169
167 170

167. Reducing waste

Implement purchasing strategies and operational policies to minimise waste production. Monitor and seek ways to minimise the purchase of disposable and consumable goods. Minimise the use of paper through electronic records and communication, reuse of paper, and double-sided printing. Avoid waste packaging by buying in bulk and using returnable containers and refillable dispensers.

Related strategies:

121
141
166

168. Reusing waste

Related strategies: 121, 122, 166

Donate and/ or reuse textiles, furniture, and materials when renovating or updating facilities. Donate foods and other unused materials after events.

169. Recycling waste

Related strategies: 166

Maximise the proportion of waste that is recycled. Waste streams that should be recycled include paper, cardboard, plastics, glass, metal, electronic waste, food and other compostable materials. Ensure that waste is separated into appropriate categories and handled separately. Provide opportunities for separated waste collection with clearly labelled recycling bins.

170. Hazardous waste

Related strategies: 166

Implement appropriate policies and procedures to ensure that hazardous materials are collected, handled, and recycled or disposed of in accordance with applicable laws and regulations. Hazardous materials are likely to include paints, solvents, oil, batteries, and fluorescent light bulbs.

171. Chemical management

Related strategies: 141, 145, 172, 177

Minimise the use of harmful substances, such as pesticides, bleaches, disinfectants, detergents, and cleaning products, substituting alternative products which are less toxic to humans and the environment whenever feasible. Use environmentally certified products where available.

172. Sustainable materials

Related strategies: 141, 145

Purchase environmentally preferable products, such as those made from recycled materials non-bleached cotton, natural fibre carpets, sustainably sourced timber furniture, natural or water-based paints, and organic foods.

Sources of further information

- A Manual for Water and Waste Management: What the Tourism Industry Can Do to Improve Its Performance, UNEP, 2003

Environmental – Biodiversity

173. Protection of sensitive environments

Related strategies: 125, 128, 129, 135, 158, 174, 175

Implement systems to monitor and minimise the impact of tourism on sensitive habitats, species, and ecosystems. If not properly managed, tourism can threaten the viability of ecologically fragile areas. Avoid disruption of wildlife habitats or clearance of vegetation during development of tourist facilities. Limit visitor numbers in environmentally fragile areas and avoid visits completely during breeding seasons or other sensitive times of the year. Provide visitors with interpretive information about the area, and guidelines on how to avoid negative impacts. Ensure that any damage that does occur is compensated for, and that habitats are given time to recover.

174. Native species

Related strategies: 99, 173, 178

Use native species of flora for landscaping and restoration, and avoiding introduction of invasive species.

175. Contributions to the support of biodiversity conservation

Related strategies: 122, 130, 173

Make financial contributions to conservation projects in protected areas and other areas of high biodiversity value, and encourage visitors to do the same. Support may include donations, membership of organizations that protect natural heritage or active participation in projects. Consider including conservation work as part of tour excursions, enabling tourists to be involved in protecting and restoring native ecosystems and species in degraded areas.

Sources of further information

- Ecotourism: Principles, Practices and Policies for Sustainability, UNEP, 2002
- Tourism and Biodiversity: Mapping Tourism's Footprint, UNEP, 2003
- Integrating Sustainability into Business – A Management Guide for Responsible Tour Operations, UNEP / Tour Operators Initiative, 2005
- Forging Links Between Protected Areas and the Tourism Sector: How tourism can benefit conservation, UNEP, 2005
- Sustainable Tourism in Protected Areas: Guidelines for Planning and Management, UNEP / IUCN / WTO, 2002

- Green Globe Standard Criteria and Indicators: http://greenglobe.com
- Global Sustainable Tourism Criteria for Hotels and Tour Operators: http://www.gstcouncil.org/

Environmental – Water

176. Monitoring water quality

Related strategies: 135, 173, 177

Monitor drinking, environmental, and recreational water quality, and publish the results. For marine water quality, apply the Blue Flag system. Implement measures to improve water quality where levels of pollutants exceed acceptable limits.

177. Minimising water pollution from activities

Related strategies: 50, 52, 171, 176

Ensure wastewater, including black and grey-water, is treated effectively and reused where possible. Apply the principles of sustainable drainage systems to minimise pollution from rainwater runoff. Minimise the use of toxic chemicals and cleaning products which will end up in the wastewater.

178. Minimising water use

Related strategies: 102, 121, 179, 180

Develop and implement a water management plan to reduce water consumption to the minimum possible level necessary for adequate operation. Install water efficient fixtures and fittings, such as dual flush low volume toilet cisterns, infrared or waterless urinals, low flow aerating wash basin taps, flow restrictors, or water efficient dishwashers and washing machines. Use a rainwater harvesting system or re-use grey water to reduce the amount of potable water consumed.

179. Monitoring water use

Related strategies: 101, 140, 178

Monitor water consumption for the attraction or facility, and install sub-meters for major water uses. Use electronic metering systems to compare consumption against a baseline and notify staff of discrepancies, facilitating rapid detection of leaks.

Photo: Emil Svensson

180. Water efficient landscaping

Implement measures to minimise potable water consumption for irrigation. Capture water run-off from roofs and hard surfaces and reuse rainwater for watering plants. Selection of native plants which are adapted to the local climate can also help to reduce watering requirements.

Related strategies:

103

178

Sources of further information

- A Manual for Water and Waste Management: What the Tourism Industry Can Do to Improve Its Performance, UNEP, 2003
- WaterSense landscaping tool http://www.epa.gov/watersense/specs/water-budget_tool/ws_rewaterbudget_tool.xls

Environmental – Atmosphere

181. Air quality monitoring

Maintain a comprehensive air quality monitoring program for the destination, and make the results publicly available. Take actions to mitigate air quality problems if air pollution exceeds acceptable limits.

Related strategies:

58
140
182

182. Low emission transport

Provide and promote the use of low emission vehicles for transport around the destination, such as buses and taxis fuelled by liquefied petroleum gas or biodiesel, or hybrid and electric vehicles.

Related strategies:

151
152
181
183

183. Greenhouse gas management

Measure, monitor, and report greenhouse gas emissions associated with tourism activities, and implement procedures to reduce and offset emissions in order to minimise climate change impacts. Set targets to reduce total emissions relative to a suitable baseline. Take account of emissions associated with heating, cooling, electricity use, and transportation, as well as methane emissions from sewage and organic wastes.

Related strategies:

60
140
182
185
189

184. Climate change adaptation

Develop and implement climate change adaptation strategies when planning the development, design, and ongoing management of tourism attractions and facilities. Ensure that they are resilient to potential impacts such as sea level rise, extremes in weather conditions, and increased flood risk.

Related strategies:

61
129
136
183

Environmental □Energy

185. Energy monitoring and management

Related strategies:

111 186
121 187
140 188
183

Conduct an energy audit of the building to determine current energy usage and develop an energy reduction plan to identify strategies to decrease overall consumption. Set annual targets to reduce total consumption relative to current performance. Measure energy consumption on an ongoing basis, and install sub-meters for areas or systems with high energy consumption. Monitor results relative to baseline levels to help identify potential performance improvements. Regularly report consumption relative to targets to relevant stakeholders. Also communicate the direct correlation between energy saved, costs saved, and carbon emission reductions. Display information for guests and staff concerning ways in which they can help to save energy.

186. Energy efficient buildings

Related strategies:

112 183
113 185
121

Construct or renovate buildings to ensure that they are as energy efficient as possible. The building fabric (walls, floors, roofs and windows) should be specified to ensure a high degree of thermal insulation. Install energy efficient heating, cooling, hot water, and ventilations systems, including the use of heat recovery systems where appropriate. Install effective controls, such as thermostatic radiator valves and timed thermostats, to ensure that energy consumption for building systems is regulated efficiently.

187. Energy efficient lighting

Related strategies:

113 183
121 185
165

Implement measures to minimise electricity consumption associated with both internal and external lighting. Maximise the use of daylight, install low energy light fittings and bulbs (compact fluorescent or LED). Install appropriate lighting controls, such as presence detectors or dimmer switches.

188. Energy efficient appliances

Related strategies:

113 183
121 185
145

Ensure that all appliances have a good energy efficiency rating. This should include fridges, freezers, dishwashers, washing machines, and office equipment. Ensure that all appliances are maintained in a good condition in order to ensure efficient performance.

189. Renewable energy

Maximise the use of sustainably sourced energy at the attraction / destination. Where feasible generate renewable energy on site (e.g. photovoltaic panels, wind turbines, micro hydro, or biomass). Alternatively, aim to purchase 100% green electricity from a renewable energy supplier.

Related strategies:

114
133
183

Sources of further information

- Renewable Energy Opportunities in the Tourism Industry, UNEP, 2003

Recommendations

RECOMMENDATIONS FOR CRUISE PORTS AND TERMINALS

Cruise ports provide a key interface between cruise ships and the destination. As a result, they have the potential to impact many aspects of the sustainability of the cruise tourism industry. Pursuing sustainable strategies can improve staff health, motivation and productivity, reduce lifecycle costs, and enhance the attractiveness of the port and the competitiveness of operations.

Cruise ports can significantly influence the sustainability of cruise ships. They should enable cruise ships to pursue sustainable approaches through provision of appropriate infrastructure, such as:

- appropriate vessels and trained staff to enable green bunkering;
- high quality reception facilities, procedures, and treatment practices for the management of ship waste and wastewater;
- supply of low emission fuels, such as liquefied natural gas (LNG) or low sulphur fuel;
- infrastructure for ships to connect to onshore power supplies.

Incentives should also be established to encourage cruise line sustainability. Actions which are often incentivised include vessel speed reduction; waste sorting and management; ballast water management; environmentally certified ships; and the use of LNG or low sulphur fuels when in port.

Ports also have significant impacts in terms of their own operations, which must be managed whilst remaining competitive. Environmental Management Systems should be established, and expanded to include a broad range of sustainability considerations. New proposals should be assessed for their likely impacts, ongoing impacts (e.g. air pollution, noise, water quality and consumption, and energy use) should be monitored and processes should be established for continuous improvement. Specific areas which should be considered carefully include: health, safety, and security; protection of port heritage assets; dredging operations; soil contamination; waste management; habitat protection; protection of local air and water quality; sustainable energy consumption (and associated greenhouse gas emissions); and minimising negative impacts on local communities.

Ports also act as a hub from which cruise tourists visit a destination, and they must ensure that efficient, sustainable linkages exist. In particular, this requires the provision of sufficient public transport infrastructure, environmentally friendly vehicles and, where appropriate to the location, facilitating walking and cycling to and around the destination.

Cruise terminal buildings provide a highly visible example of a cruise port's commitment to sustainability. They must be robust, flexible, and fit for purpose, and should be designed to provide high quality, healthy internal environments. The construction and operation of terminals should be managed in a way that minimises negative impacts on local environmental quality, results in efficient, sustainable use of resources (materials, waste, water and energy), and enhances local biodiversity.

Given their central role, ports are also key players in many of the collaborative relationships which must be developed in the sector. Integrated supply chains which incentivise the delivery of sustainable goods and services should be developed with local businesses. The relationship with the destination should be enhanced; providing joined up cruise tourism offerings, building positive relations with local stakeholders, and ensuring efficient, sustainable land use planning. Ports should engage with cruise lines to ensure that the available facilities meet their requirements, and should undertake marketing activities to develop a sustainable brand, both as individual ports and with other ports and destinations throughout the region. Finally, ports in the NSR should continue working together, and with destinations and cruise lines, to share best practice and develop optimal solutions.

RECOMMENDATIONS FOR CRUISE DESTINATIONS

Cruise destinations need to develop and manage tourism-related activities and services in a way that ensures their long term viability as a tourist destination.

Destinations, and attractions and facilities associated with them, should develop and implement systems to manage and monitor their impacts. This should include the use of systems for environmental management, sustainability management, and quality management. New developments and approaches should be assessed for their economic, social and environmental impacts. Supply chain performance demands should be set and suppliers engaged, assessed, and supported in order to drive sustainability improvements. Impacts must be monitored in order to understand current performance and identify areas for improvement. This should include monitoring of socio-economic impacts (employment, generated revenue, lifecycle costs etc.), as well as environmental issues, such as water quality and use, waste production, air quality, carbon emissions, and energy use.

Measures should be implemented to maximise socio-economic benefits resulting from cruise tourism in the region. These could include employment of local labour, support for local businesses, sourcing from local suppliers, and engagement with and investment in local communities. The environmental consequences of activities should also be managed and improved. This is likely to involve enabling and encouraging sustainable travel; sourcing sustainable materials and food; minimising production of waste and emissions of light, air and water pollution; and maximising efficiency of energy and water consumption.

Visitor satisfaction is an essential prerequisite for a successful cruise destination, and measures should be taken to ensure that this is maximised. Examples include ensuring that employees are motivated and well trained, managing overcrowding issues, responsible marketing activities with ongoing visitor feedback, and the development of high quality shore excursions which ensure visitor accessibility, safety, and security.

An essential aspect of the sustainability of a destination involves ensuring that it remains viable. Economic viability will depend on managing lifecycle costs while remaining competitive and attractive as a cruise destination. Strategies should be implemented which minimise operational costs (e.g. reducing resource consumption) and mitigate the impacts of likely seasonal variations in tourist numbers. Ports must establish an appropriate marketing strategy, making a firm decision as to whether they intend to act as a home port or a port of call, and implement appropriate measures to ensure that sufficient facilities exist to meet associated requirements. Destinations in the NSR have the

potential to enhance their reputation for sustainability, and there is evidence that this may deliver dividends in terms of willingness to pay for sustainable holidays.

Finally, for a destination to remain a desirable place to visit, it is also essential that its distinctive character is preserved. Hence strategies should also be implemented which protect and, where appropriate, enhance cultural heritage, landscape attractiveness, and sensitive habitats and ecosystems.

RECOMMENDATIONS FOR ON-GOING COOPERATION

Collaboration and consultation are essential to the success of any sustainability initiative. However, this is even more the case in the tourism industry, given the wide range of actors and stakeholders involved and the complex relationships and responsibilities between them. Collaboration can help to:

- ensure that all involved understand the relevance and importance of the issues;
- develop agreement on mutually beneficial strategies; and,
- facilitate consistent implementation of sustainability programs.

Each of the key players in the industry needs to develop relationships with all of their main stakeholders. In particular, it is recommended that three main types of collaboration are pursued.

Destination partnerships

Establish partnerships involving all of the key players at the destination in delivering a high quality, joined up, sustainable cruise tourism service to cruise lines and their passengers. This should include ports, infrastructure providers, attractions, tour operators, local authorities, service companies, and suppliers of goods. Ensure a high level of connection between the port and the destination, particularly in terms of sustainable transport infrastructure. Develop integrated supply chains for delivery of goods and services to cruise ships and their guests. Each port and destination should develop a picture of who is responsible for actions such as those outlined in this report. The organisations or positions with responsibilities for activities such as procurement of shoreside transport for excursions or waste management operations may vary. For each activity it is necessary to establish who the key players are and how they can work together to ensure that the strategy is successful and benefits all involved.

Knowledge sharing networks

Create collaborative networks for the development and exchange of information, ideas, and best practice. Knowledge sharing could be conducted via a range of channels, either through a single organisation or through multiple smaller partnerships focussed on specific issues.

While this guide provides a summary of many potential examples of best practice which could be pursued, each option must be explored, its relative merits considered, and the most appropriate means of implementation in specific

contexts established. In particular, further collaboration is required in order to develop standardised technologies (e.g. onshore power supplies) and processes (e.g. waste sorting and collection). Knowledge sharing networks involving all interested parties (e.g. port associations, cruise lines, service companies, and destinations) can facilitate discussion of the issues and their practical implications, exchange experiences and successful project implementations, and leverage collective knowledge to develop optimal solutions.

Collaboration within the North Sea Region

Cruise ports in the NSR, and potentially beyond, should develop long-term international co-operative forums. These should focus on knowledge sharing (as above), drawing public attention to best practices being implemented, and marketing - creating joint offerings as a clearly defined region to attract passengers and cruise lines. Destinations in the region should also work together in developing feasible and attractive tourism offering for cruise lines, recognising that their success as a cruise destination will depend on marketing viable cruise packages with nearby destinations. Finally, both cruise ports and destinations in the region should also increase the level of collaboration with cruise lines. This is necessary in order to build a common understanding of the issues and stakeholder requirements, and to develop standardised technologies and processes and practical sustainable solutions. Cruise ships are obviously a key factor in many of the impacts involved in cruise tourism, and win-win solutions need to be developed which achieve sustainable outcomes for all involved.

Photo: Nicola Evans

Conclusions

This guide provides a summary of many of the possible best practice strategies which could be pursued by the cruise industry in the North Sea Region in order to improve its sustainability.

Different strategies will be appropriate in different circumstances. The most appropriate solutions in a specific context will depend on the most significant current impacts, the potential cost-benefit, local priorities, and the people involved. It should also be noted that strategies cannot be implemented in isolation - most will affect multiple issues, and are connected to other possible strategies. Each option must be explored, its relative merits considered, and appropriate means of implementation established.

Finally, in order to increase the sustainability of the cruise industry, it is essential for the multiple actors involved to collaborate. By working together, it is possible to evolve approaches which achieve benefits for all involved. Long term collaborative partnerships should be formed to explore options, share best practice, develop integrated solutions, and drive improvements.

Sustainable development is not a goal – it is a process of change.

LIST OF STRATEGIES

1. Economic incentive schemes
2. Staff training
3. Green bunkering certification
4. Supporting small businesses
5. Marketing a sustainable port
6. Group marketing with destinations
7. Group marketing with other cruise ports
8. Sustainability reporting
9. Stakeholder engagement
10. Community relations
11. Environmental Management Systems
12. Sustainable port policies
13. Sustainability assessment of future developments
14. Indicators and monitoring performance
15. Continuous improvement
16. Supply chain performance requirements
17. Supply chain metrics and monitoring
18. Environmentally Preferable Purchasing
19. Port facilities
20. Aesthetics and port environmental quality
21. Driving sustainable change
22. Traffic Management
23. Green travel plans
24. Public transport infrastructure
25. Environmentally friendly vehicles
26. Vessel speed reduction
27. Health and safety management
28. Health of surrounding communities
29. Emergency preparedness and response
30. Sharing best practice
31. Collaboration with other ports
32. Port-destination relationship
33. Protection and emphasis of port heritage
34. Environmental management of dredging operations
35. Management of dredged sediments
36. Avoid contamination of soil
37. Remediation of contaminated sites
38. Light pollution
39. Land use planning
40. Waste planning and management
41. Monitoring waste
42. Waste reception facilities
43. Collection of waste fractions
44. Developing common waste collection procedures
45. Waste recycling and recovery
46. Dealing with hazardous wastes

47. Waste management charges
48. Habitat protection, restoration and enhancement
49. Ballast Water Management
50. Storm water management
51. Flood risk management
52. Water quality monitoring
53. Green bunkering
54. Spill prevention and incident management
55. Wastewater reception facilities
56. On site wastewater treatment / sewage treatment plant
57. Minimising air pollution
58. Air quality monitoring
59. Low emission port vehicles and terminal equipment
60. Greenhouse gas management
61. Climate change adaptation
62. Liquefied Natural Gas
63. Low sulphur fuel
64. Certification of environmentally friendly ships
65. Noise management
66. Noise monitoring
67. Noise reduction measures
68. Preventing noise propagation Noise insulation
69. Onshore power supply
70. Heat exchangers
71. Renewable energy production
72. Lifecycle costs
73. Employee health and productivity
74. Terminal buildings as exemplars
75. Environmental certification schemes
76. Building user guide
77. Building Management Systems
78. Sustainable design and construction guidelines
79. Tenant requirements
80. Designing for robustness
81. Fitness for purpose
82. Flexibility
83. Cyclist facilities
84. Parking provision
85. Optimise natural daylight
86. Stakeholder engagement
87. Protecting and emphasizing port heritage features
88. Maintaining soil quality
89. Non-toxic landscaping maintenance
90. Efficient land use
91. Construction waste management
92. Minimise use of materials
93. Sustainable materials in construction
94. Hazardous Materials

95. Reuse of structures and materials
96. Design for deconstruction
97. Local sourcing of materials
98. Facilitate recycling
99. Native landscaping
100. Green roofs
101. Manage and monitor water use
102. Reducing water consumption
103. Rainwater harvesting
104. On site treatment
105. Construction air quality
106. Indoor air quality management
107. Natural ventilation
108. Low emitting materials
109. Refrigerant management
110. Optimum acoustic environment
111. Energy management, metering and audits
112. Ef□cient building fabric and services
113. Energy ef□cient lighting and equipment
114. On site renewable generation
115. Passive and microclimate design
116. Home ports vs ports of call
117. Maximising local economic bene□ts
118. Economic monitoring
119. Willingness to pay for sustainable holidays
120. Seasonal variations
121. Cost savings
122. Donations and investments to local community
123. Employment policies
124. Staff motivation and engagement
125. Staff sustainability awareness
126. Local labour
127. Local businesses
128. Develop a sense of place
129. Protection and enhancement of destination appeal
130. Quality of shore excursions
131. Certi□cation of destinations
132. Building certi□cation schemes
133. Developing reputation as a sustainable destination
134. Responsible marketing
135. Visitor satisfaction and feedback
136. Destination management plans
137. Sustainability management systems
138. Environmental Assessment
139. Social Impact Assessment
140. Monitoring impacts
141. Sustainability purchasing policy and performance demands
142. Supply chain engagement

143. Supply chain assessment and audits
144. Local sourcing
145. Eco-labels
146. Quality management systems
147. Aesthetics
148. Capacity assessment
149. Setting passenger limits
150. Cruise calendar
151. Travel information
152. Enabling sustainable transport
153. Accessibility
154. Visitor health, safety and security
155. Collaboration with other destinations in the region
156. Joined up services
157. Local community engagement
158. Tourist awareness of sustainability issues
159. Minimising damage to cultural heritage
160. Site interpretation
161. Contributions to heritage protection
162. Local crafts and traditions
163. Land use planning and coastal zone management
164. Avoiding landscape deterioration
165. Light pollution
166. Waste management
167. Reducing waste
168. Reusing waste
169. Recycling waste
170. Hazardous waste
171. Chemical management
172. Sustainable materials
173. Protection of sensitive environments
174. Native species
175. Contributions to the support of biodiversity conservation
176. Monitoring water quality
177. Minimising water pollution from activities
178. Minimising water use
179. Monitoring water use
180. Water ef□cient landscaping
181. Air quality monitoring
182. Low emission transport
183. GHG management
184. Climate change adaptation
185. Energy monitoring and management
186. Energy ef□cient buildings
187. Energy ef□cient lighting
188. Energy ef□cient appliances
189. Renewable energy

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